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NEWS 2	OCT 02	CA/CAplus enhanced with pre-1907 records from Chemisches Zentralblatt
NEWS 3	OCT 19	BEILSTEIN updated with new compounds
NEWS 4	NOV 15	Derwent Indian patent publication number format enhanced
NEWS 5	NOV 19	WPIX enhanced with XML display format
NEWS 6	NOV 30	ICSD reloaded with enhancements
NEWS 7	DEC 04	LINPADOCDB now available on STN
NEWS 8	DEC 14	BEILSTEIN pricing structure to change
NEWS 9	DEC 17	USPATOLD added to additional database clusters
NEWS 10	DEC 17	IMSDRUGCONF removed from database clusters and STN
NEWS 11	DEC 17	DGENE now includes more than 10 million sequences
NEWS 12	DEC 17	TOXCENTER enhanced with 2008 MeSH vocabulary in MEDLINE segment
NEWS 13	DEC 17	MEDLINE and LMEDLINE updated with 2008 MeSH vocabulary
NEWS 14	DEC 17	CA/CAplus enhanced with new custom IPC display formats
NEWS 15	DEC 17	STN Viewer enhanced with full-text patent content from USPATOLD
NEWS 16	JAN 02	STN pricing information for 2008 now available
NEWS 17	JAN 16	CAS patent coverage enhanced to include exemplified prophetic substances
NEWS 18	JAN 28	USPATFULL, USPAT2, and USPATOLD enhanced with new custom IPC display formats
NEWS 19	JAN 28	MARPAT searching enhanced
NEWS 20	JAN 28	USGENE now provides USPTO sequence data within 3 days of publication
NEWS 21	JAN 28	TOXCENTER enhanced with reloaded MEDLINE segment
NEWS 22	JAN 28	MEDLINE and LMEDLINE reloaded with enhancements
NEWS 23	FEB 08	STN Express, Version 8.3, now available
NEWS 24	FEB 20	PCI now available as a replacement to DPCI
NEWS 25	FEB 25	IFIREF reloaded with enhancements
NEWS 26	FEB 25	IMSPRODUCT reloaded with enhancements
NEWS 27	FEB 29	WPINDEX/WPIDS/WPIX enhanced with ECLA and current U.S. National Patent Classification

NEWS EXPRESS FEBRUARY 08 CURRENT WINDOWS VERSION IS V8.3,
AND CURRENT DISCOVER FILE IS DATED 20 FEBRUARY 2008

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NEWS LOGIN	Welcome Banner and News Items
NEWS IPC8	For general information regarding STN implementation of IPC 8

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=> s rotaxane (l) (complex or inclusion or host)
L1   898 ROTAXANE (L) (COMPLEX OR INCLUSION OR HOST)

=> dup rem
ENTER L# LIST OR (END):l1
PROCESSING COMPLETED FOR L1
L2   730 DUP REM L1 (168 DUPLICATES REMOVED)

=> s l2 and py<=2003
L3   430 L2 AND PY<=2003

=> s l3 and rotaxane (s) (complex or inclusion or host)
L4   331 L3 AND ROTAXANE (S) (COMPLEX OR INCLUSION OR HOST)

=> d scan l4

L4   331 ANSWERS   CAPLUS COPYRIGHT 2008 ACS on STN
CC   22-3 (Physical Organic Chemistry)
     Section cross-reference(s): 75
TI   First Pseudorotaxane-Like [3]Complexes Based on Cryptands and Paraquat:
     Self-Assembly and Crystal Structures
ST   pseudorotaxane inclusion complex cryptand paraquat base prepn crystallog
IT   Formation constant
        (association constant; preparation and crystallog. of pseudorotaxane-like
        complexes based on cryptands and paraquat)
IT   Crystal structure
     Encapsulation
     Hydrogen bond
     Molecular structure
     Self-assembly
        (preparation and crystallog. of pseudorotaxane-like complexes based on
        cryptands and paraquat)
IT   Cryptands
     RL: CPS (Chemical process); PEP (Physical, engineering or chemical

process); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); RACT (Reactant or reagent)
(preparation and crystallog. of pseudorotaxane-like complexes based on cryptands and paraquat)

IT Inclusion compounds
RL: FMU (Formation, unclassified); PRP (Properties); FORM (Formation, nonpreparative)
(preparation and crystallog. of pseudorotaxane-like complexes based on cryptands and paraquat)

IT NMR (nuclear magnetic resonance)
(proton; preparation and crystallog. of pseudorotaxane-like complexes based on cryptands and paraquat)

IT Rotaxanes
RL: FMU (Formation, unclassified); PRP (Properties); FORM (Formation, nonpreparative)
(pseudorotaxanes; preparation and crystallog. of pseudorotaxane-like complexes based on cryptands and paraquat)

IT 591767-50-9P 591767-51-0P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(crystal structure; preparation and crystallog. of pseudorotaxane-like complexes based on cryptands and paraquat)

IT 64739-07-7 106376-99-2
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(preparation and crystallog. of pseudorotaxane-like complexes based on cryptands and paraquat)

IT 249925-32-4
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(preparation and crystallog. of pseudorotaxane-like complexes based on cryptands and paraquat)

IT 591767-47-4P
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); RACT (Reactant or reagent)
(preparation and crystallog. of pseudorotaxane-like complexes based on cryptands and paraquat)

IT 591767-49-6
RL: FMU (Formation, unclassified); RCT (Reactant); FORM (Formation, nonpreparative); RACT (Reactant or reagent)
(preparation and crystallog. of pseudorotaxane-like complexes based on cryptands and paraquat)

IT 108-73-6, Phloroglucinol 4685-14-7, Paraquat
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation and crystallog. of pseudorotaxane-like complexes based on cryptands and paraquat)

IT 59291-87-1P, 5-Benzyloxyresorcinol 591767-46-3P 591767-48-5P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and crystallog. of pseudorotaxane-like complexes based on cryptands and paraquat)

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):end

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ALL L# QUERIES AND ANSWER SETS ARE DELETED AT LOGOFF
LOGOFF? (Y)/N/HOLD:n

=> s rotaxane and (drug (s) delivery)
1 FILES SEARCHED...
L5 75 ROTAXANE AND (DRUG (S) DELIVERY)

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=> s l5 and py<=2003
L6          37 L5 AND PY<=2003

=> dup rem
ENTER L# LIST OR (END):l6
PROCESSING COMPLETED FOR L6
L7           35 DUP REM L6 (2 DUPLICATES REMOVED)

=> d l7 ibib abs 1-35

L7   ANSWER 1 OF 35  CAPLUS  COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER:        2004:681395  CAPLUS
DOCUMENT NUMBER:         141:195314
TITLE:                   Multivalently interactive molecular assembly,
                         capturing agent, drug carrier, calcium chelating
                         agent, and drug enhancer
INVENTOR(S):             Yui, Nobuhiko; Maruyama, Atsushi; Ooya, Tooru
PATENT ASSIGNEE(S):      Japan
SOURCE:                  U.S. Pat. Appl. Publ., 47 pp., Cont.-in-part of U.S.
                         Pat. Appl. 2003 171,573.
                         CODEN: USXXCO
DOCUMENT TYPE:           Patent
LANGUAGE:                English
FAMILY ACC. NUM. COUNT:  2
PATENT INFORMATION:

     PATENT NO.          KIND   DATE        APPLICATION NO.        DATE
     ---------------     ----   --------    --------------------   --------
     US 2004162275        A1    20040819    US 2003-679499         20031007
     US 2003171573        A1    20030911    US 2002-230394         20020829 <--
PRIORITY APPLN. INFO.:                      JP 2002-52474       A  20020227
                                            US 2002-230394      B2 20020829
AB   A multivalently interactive mol. assembly having a plurality of functional
     groups or ligands, in which a ratio between Rh and Rg expressed as Rh/Rg
     is 1.0 or less.  Here, Rh is a hydrodynamic radius calculated from dynamic
     light scattering (DLS) assay performed in aqueous solution; and Rg is a radius
of
     gyration determined based on the Zimm plot generated using data obtained by
     static light scattering (SLS) assay.  A polyrotaxane was prepared from
     α-cyclodextrin and diamino-PEG and reacted with Z-L-Phe succinimide
     ester.  Then biotin mols. were introduced into the polyrotaxane mol.
     Examples were given of anal. of biotin-polyrotaxane conjugate binding to
     streptavidin-immobilized surface using surface plasmon resonance.  Trypsin
     activity inhibition and Ca chelating activities of polyrotaxanes were also
     given.

L7   ANSWER 2 OF 35  CAPLUS  COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER:        2003:5802  CAPLUS
DOCUMENT NUMBER:         138:66692
TITLE:                   Tissue-specific transporter inhibitor in treatment of
                         tissue dysfunction diseases and chronic renal failure
INVENTOR(S):             Tsuji, Akira; Tamai, Ikumi; Sai, Yoshimichi; Yui,
                         Noubuhiko; Oya, Toru; Miyamoto, Ken-ichi
PATENT ASSIGNEE(S):      Japan Science and Technology Corporation, Japan
SOURCE:                  PCT Int. Appl., 53 pp.
                         CODEN: PIXXD2
DOCUMENT TYPE:           Patent
LANGUAGE:                Japanese
FAMILY ACC. NUM. COUNT:  1
PATENT INFORMATION:
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PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003000285	A1	20030103	WO 2002-JP6104	20020619 <--
W: AU, CA, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
JP 2003002843	A	20030108	JP 2001-188843	20010621 <--
JP 3942846	B2	20070711		
CA 2451433	A1	20030103	CA 2002-2451433	20020619 <--
CA 2451433	C	20071030		
AU 2002313242	A1	20030108	AU 2002-313242	20020619 <--
EP 1405644	A1	20040407	EP 2002-738767	20020619
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR				
US 2004191211	A1	20040930	US 2003-742335	20031219
PRIORITY APPLN. INFO.:			JP 2001-188843 A	20010621
			WO 2002-JP6104 W	20020619

AB It is intended to provide a tissue-specific transporter inhibitor which is not absorbed in the digestive tract and can prevent worsening in the quality of life (QOL) of a patient due to diet therapy; and remedies for tissue dysfunction diseases and remedies for chronic renal failure progress containing the above inhibitor as the active ingredient. The tissue-specific transporter inhibitor not absorbed in the digestive tract is prepared by introducing a dipeptide which is a ligand of oligopeptide transporter 1 into a supermol. structure polyrotaxane which is expected as being excellent in the interaction of its structurally modified active residue with a transmembrane transporter.

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 3 OF 35 CAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2003:717792 CAPLUS
DOCUMENT NUMBER: 139:224476
TITLE: Multivalently interactive molecular assembly, capturing agent, drug carrier, calcium chelating agent, and drug enhancer
INVENTOR(S): Yui, Nobuhiko; Maruyama, Atsushi; Ooya, Tooru
PATENT ASSIGNEE(S): Japan
SOURCE: U.S. Pat. Appl. Publ., 33 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003171573	A1	20030911	US 2002-230394	20020829 <--
JP 2004027183	A	20040129	JP 2003-51163	20030227
US 2004162275	A1	20040819	US 2003-679499	20031007
PRIORITY APPLN. INFO.:			JP 2002-52474 A	20020227
			US 2002-230394 A	20020829

AB The invention relates to a multivalently interactive mol. assembly which can effectively and stably bind to a target substance in vivo or in vitro, a capturing agent comprising said multivalently interactive mol. assembly for capturing an object of interest in vivo or in vitro, a drug carrier which aids administration of a drug, a calcium chelating agent which can effectively chelate calcium, and a drug enhancer which can be administered with a drug to assist in e.g. absorption of the drug. The invention discloses a multivalently interactive mol. assembly having a plurality of functional groups or ligands, in which a ratio between Rh and Rg expressed as Rh/Rg is 1.0 or less. Here, Rh is a hydrodynamic radius calculated from a

dynamic light scattering assay performed in aqueous solution, and Rg is a radius of gyration determined based on the Zimm plot generated using data obtained by a static light scattering assay. Specifically, the invention discloses polyrotaxanes, the synthesis of which is described.

L7 ANSWER 4 OF 35 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2003:558225 CAPLUS
DOCUMENT NUMBER: 140:117028
TITLE: Polyrotaxanes: challenge to multivalent binding with biological receptors on cell surfaces
AUTHOR(S): Yui, Nobuhiko; Ooya, Tooru
CORPORATE SOURCE: Japan Advanced Institute of Science and Technology, Tatsunokuchi, Ishikawa, 923-1292, Japan
SOURCE: Materials Science Forum (2003), 426-432(Pt. 4, THERMEC'2003), 3243-3248
CODEN: MSFOEP; ISSN: 0255-5476
PUBLISHER: Trans Tech Publications Ltd.
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English
AB A review. The challenge to multivalent binding between ligands and proteins or biol. receptors on cell surfaces has been focused on using supramol.-structured polymers, polyrotaxanes. Our designed polyrotaxanes consist of ligand-immobilized α-cyclodextrins (α-CDs) threaded onto a linear polymeric chain (polyethylene glycol) (PEG) capped both terminals with bulky end-groups via biodegradable linkages. Structural characteristics of these polyrotaxanes involve sliding and rotational motion of the ligands immobilized on α-CDs along a PEG chain as to easily face to binding sites on proteins, which can contribute much to enhanced multivalent binding with proteins.
REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 5 OF 35 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2003:489737 CAPLUS
DOCUMENT NUMBER: 140:47100
TITLE: Approach to multivalent biological interactions by using supermolecular biomaterials
AUTHOR(S): Yui, Nobuhiko
CORPORATE SOURCE: Japan Advanced Institute of Science and Technology, Japan
SOURCE: Gekkan Yakuji (2003), 45(7), 1269-1272
CODEN: YAKUD5; ISSN: 0016-5980
PUBLISHER: Jiho
DOCUMENT TYPE: Journal; General Review
LANGUAGE: Japanese
AB A review especially covering multivalent interaction of ligand-introduced α-cyclodextrin/polyethylene glycol-based polyrotaxanes with proteins for their application as biomaterials.

L7 ANSWER 6 OF 35 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2003:819708 CAPLUS
DOCUMENT NUMBER: 140:391507
TITLE: Rotaxane dendrimers
AUTHOR(S): Lee, Jae Wook; Kim, Kimoon
CORPORATE SOURCE: Department of Chemistry, Dong-A University, Pusan, 604-714, S. Korea
SOURCE: Topics in Current Chemistry (2003), 228(Dendrimers V), 111-140
CODEN: TPCCAQ; ISSN: 0340-1022
PUBLISHER: Springer-Verlag
DOCUMENT TYPE: Journal; General Review

LANGUAGE: English

AB A review. The synthesis, properties, and potential applications of rotaxane dendrimers, dendritic mols. containing rotaxane -like mech. bonds to link their components are described. Rotaxane dendrimers are classified into three types depending on where rotaxane-like features are introduced - Type I, II, and III rotaxane dendrimers which incorporate rotaxane -like features at the core, termini, and branches, resp. Several different types of macrocycles are employed as the ring component in the templated synthesis of rotaxane dendrimers. In the synthesis of rotaxane dendrimers, several aspects should be carefully considered, including the binding affinity of the macrocycle (ring) and guest (rod). The properties of these rotaxane dendrimers are quite different from those of the individual rotaxanes or dendrimers and often a blend of both. Potential applications of rotaxane dendrimers include mol. nanoreactors, drug delivery, and gene delivery.

REFERENCE COUNT: 69 THERE ARE 69 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 7 OF 35 CAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2002:449510 CAPLUS

DOCUMENT NUMBER: 137:24340

TITLE: Noble gas complexes

INVENTOR(S): Mason, Rodney Stewart; Moozyckine, Alexei Uriah; Dingley, John

PATENT ASSIGNEE(S): UWS Ventures Limited, UK

SOURCE: PCT Int. Appl., 23 pp.
CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002045721	A1	20020613	WO 2001-GB5356	20011204 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2002020881	A5	20020618	AU 2002-20881	20011204 <--
PRIORITY APPLN. INFO.:			GB 2000-29586 A	20001204
			GB 2001-9066 A	20010411
			WO 2001-GB5356 W	20011204

AB An infusion formulation for inducing and/or maintaining anesthesia includes a complex of a noble gas, i.e., krypton or xenon, and a mol. encapsulating agent. The encapsulating agent is a cyclodextrin, its derivative, a soluble polymer or a rotaxane. The formulation may also be used as an analgesic formulation or in a neuroprotective formulation.

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 8 OF 35 CAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2002:98608 CAPLUS

DOCUMENT NUMBER: 136:156401

TITLE: Polyrotaxanes containing ε-polylysine as

antibacterial agents, and manufacture of ε-polylysine therefrom
INVENTOR(S): Yui, Nobuhiko; Otani, Toru; Hiraki, Jun; Arakawa, Kenji
PATENT ASSIGNEE(S): Chisso Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002037884	A	20020206	JP 2000-226673	20000727 <--
PRIORITY APPLN. INFO.:			JP 2000-226673	20000727

AB The invention provides a polyrotaxane containing ε-polylysine and α-cyclodextrin, suitable for use in a food or pharmaceutical product as an antibacterial agent. Also, method fo manufacturing purified ε-polylysine by using the polyrotaxane is also disclosed.

L7 ANSWER 9 OF 35 EMBASE COPYRIGHT (c) 2008 Elsevier B.V. All rights reserved on STN
ACCESSION NUMBER: 2003113589 EMBASE
TITLE: Controlled release from crosslinked degradable networks.
AUTHOR: Davis K.A.; Anseth K.S.
CORPORATE SOURCE: K.S. Anseth, Department of Chemical Engineering, University of Colorado-Boulder, Campus Box 424, Boulder, CO 80309, United States. kristi.anseth@colorado.edu
SOURCE: Critical Reviews in Therapeutic Drug Carrier Systems, (2002) Vol. 19, No. 4-5, pp. 385-423.
Refs: 133
ISSN: 0743-4863 CODEN: CRTSEO
COUNTRY: United States
DOCUMENT TYPE: Journal; General Review; (Review)
FILE SEGMENT: 037 Drug Literature Index
039 Pharmacy
LANGUAGE: English
SUMMARY LANGUAGE: English
ENTRY DATE: Entered STN: 27 Mar 2003
Last Updated on STN: 27 Mar 2003
AB This article reviews controlled release from crosslinked degradable networks. Network formulations include those derived from wholly synthetic components, natural components, and combinations thereof. This includes, but is not limited to, poly(orthoesters), poly(anhydrides), poly(ethylene glycol) (PEG) derivatives, and dextran functional macromonomers. In addition, we present a discussion of the chemistry behind novel degradable networks with potential use in the controlled release realm.

L7 ANSWER 10 OF 35 CAPLUS COPYRIGHT 2008 ACS on STN DUPLICATE 1
ACCESSION NUMBER: 2002:258831 CAPLUS
DOCUMENT NUMBER: 138:175631
TITLE: Multivalent interactions between biotin-polyrotaxane conjugates and streptavidin as a model of new targeting for transporters
AUTHOR(S): Ooya, Tooru; Yui, Nobuhiko
CORPORATE SOURCE: School of Materials Science, Japan Advanced Institute of Science and Technology, Tatsunokuchi, Ishikawa, 923-1292, Japan
SOURCE: Journal of Controlled Release (2002), 80(1-3), 219-228

CODEN: JCREEC; ISSN: 0168-3659
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Kinetic anal. of interactions between biotin-polyrotaxane or biotin-α-cyclodextrin (biotin-α-CD) conjugates and streptavidin was carried out as a model of new targeting to transporters using the surface plasmon resonance (SPR) technique. The biotin-polyrotaxane conjugates, in which biotin-introduced α-CDs are threaded onto a poly(ethylene oxide) chain capped with bulky end-groups, are expected to increase the valency of biotin from monovalent to multivalent binding. The number of biotins conjugated with one polyrotaxane mol. varied from 11 to 78, and apparently increased the association equilibrium constant (Ka), assuming pseudo-first-order kinetics. A detailed dissociation kinetics was analyzed and the re-binding of the biotin-polyrotaxane conjugates was observed on the streptavidin-deposited SPR surface. The magnitude of the re-binding is likely to become larger with increasing the number of biotins, suggesting multivalent interaction on the SPR surface. To quantify the effect of valency, competitive inhibition assay was performed in terms of the supramol. structure of the polyrotaxane. The inhibitory potency of the biotin-polyrotaxane conjugate was found to be 4-5 times greater than that of the biotin-α-CD conjugate. Therefore, the biotin-polyrotaxane conjugates by supramol. formation of the biotin-α-CD conjugate significantly switches from monovalent to multivalent bindings to the model binding protein, streptavidin.
REFERENCE COUNT: 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 11 OF 35 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2002:175158 CAPLUS
DOCUMENT NUMBER: 136:205279
TITLE: Biomaterials design in nano-scale sciences
AUTHOR(S): Yui, Nobuhiko
CORPORATE SOURCE: Sch. Mater. Sci., Japan Adv. Inst. Sci. Technol., Ishikawa, 923-1292, Japan
SOURCE: Fragrance Journal (2002), 30(1), 56-60
CODEN: FUJAD7; ISSN: 0288-9803
PUBLISHER: Fureguransu Janaru Sha
DOCUMENT TYPE: Journal; General Review
LANGUAGE: Japanese
AB A review on design of functional materials with supramol. structure for biomedical and pharmaceutical application, discussing design of mech. interlocked mol. assemblies such as polyrotaxanes and its application to drug delivery system, and design of biodegradable polyrotaxane hydrogels for tissue engineering.

L7 ANSWER 12 OF 35 CAPLUS COPYRIGHT 2008 ACS on STN DUPLICATE 2
ACCESSION NUMBER: 2002:628383 CAPLUS
DOCUMENT NUMBER: 138:406712
TITLE: Carboxyethyl ester-polyrotaxanes as a new calcium chelating polymer: synthesis, calcium binding and mechanism of trypsin inhibition
AUTHOR(S): Ooya, Tooru; Eguchi, Masaru; Ozaki, Atsushi; Yui, Nobuhiko
CORPORATE SOURCE: School of Materials Science, Japan Advanced Institute of Science and Technology, Tatsunokuchi, Ishikawa, 923-1292, Japan
SOURCE: International Journal of Pharmaceutics (2002), 242(1-2), 47-54
CODEN: IJPHDE; ISSN: 0378-5173
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal

LANGUAGE: English
AB A carboxyethylester-polyrotaxane was synthesized as a novel calcium chelating polymer in the field of oral drug delivery and characterized in terms of mechanism of trypsin inhibition. Here, carboxyethyl ester (CEE) groups are introduced to all the primary hydroxyl groups in α-cyclodextrins (α-CDs), which are threaded onto a poly(ethylene glycol) chain capped with bulky end-groups (polyrotaxane). The solubility of the CEE-polyrotaxane in physiol. conditions increased with pH, indicating ionization-related solubility similar to conventional polyacrylates. The ability of calcium (Ca2+) chelation was found to increase in the order of poly(acrylic acid) (PAA)>CEE-polyrotaxane»CEE-α-CD, suggesting that the increased d. of carboxyl groups enhances the Ca2+ chelating ability. The activity of trypsin was inhibited by these compds. in the same order of the calcium chelation. However, the inhibitory effect of CEE-polyrotaxane was reduced by adding excess Ca2+ without precipitation that was observed in the presence of PAA.
Such the reduced inhibition and precipitation by CEE-α-CD was not observed Therefore, the inhibitory effect of CEE-polyrotaxane is due to Ca2+ chelation from trypsin without non-specific interaction.
REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 13 OF 35 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2002:691806 CAPLUS
DOCUMENT NUMBER: 138:343544
TITLE: Supramolecular design aiming at intelligent DDS
AUTHOR(S): Yui, Nobuhiko
CORPORATE SOURCE: Japan
SOURCE: Kino Zairyo (2002), 22(8), 28-34
CODEN: KIZAEP; ISSN: 0286-4835
PUBLISHER: Shi Emu Shi Shuppan
DOCUMENT TYPE: Journal; General Review
LANGUAGE: Japanese
AB A review on intelligent drug delivery system (DDS).
Topics discussed are design of biomaterial containing polyrotaxane, multivalent interaction between the polyrotaxane and cell membrane receptors, design of hydrogel containing inclusion complex of α-cyclodextrin with poly(ε-lysine) and biodegradable polyrotaxane hydrogel, and supermol. design of nano-scale biomaterial for DDS.

L7 ANSWER 14 OF 35 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2001:553147 CAPLUS
DOCUMENT NUMBER: 135:362419
TITLE: Polyrotaxanes with molecular recognition functions
AUTHOR(S): Ooya, Tooru
CORPORATE SOURCE: Graduate School of Material Science, Hokuriku Advanced Science and Technology University, Japan
SOURCE: Kobunshi (2001), 50(7), 456
CODEN: KOBUA3; ISSN: 0454-1138
PUBLISHER: Kobunshi Gakkai
DOCUMENT TYPE: Journal; General Review
LANGUAGE: Japanese
AB A review with refs. A review with 19 refs., on construction and structures of polyrotaxanes with mol. recognition functions for use in drug delivery system.

L7 ANSWER 15 OF 35 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2002:346895 CAPLUS
DOCUMENT NUMBER: 138:78277
TITLE: Controllable erosion time and profile in poly(ethylene

glycol) hydrogels by supramolecular structure of hydrolyzable polyrotaxane
AUTHOR(S): Ichi, T.; Lee, W. K.; Ooya, T.; Yui, N.
CORPORATE SOURCE: School of Materials Science, Japan Advanced Institute of Science and Technology, Ishikawa, 923-1292, Japan
SOURCE: Proceedings - 28th International Symposium on Controlled Release of Bioactive Materials and 4th Consumer & Diversified Products Conference, San Diego, CA, United States, June 23-27, 2001 (2001), Volume 1, 365-366. Controlled Release Society: Minneapolis, Minn.
CODEN: 69CNY8
DOCUMENT TYPE: Conference
LANGUAGE: English
AB The hydrolytic erosion behaviors of poly(ethylene glycol) (PEG) hydrogels crosslinked by a hydrolyzable polyrotaxane were characterized. The erosion time and profile of these hydrogels were controllable and these hydrogels showed the enhanced stability of hydrolysis with highly water swollen state.
REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 16 OF 35 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2001:670733 CAPLUS
DOCUMENT NUMBER: 136:345631
TITLE: Synthesis of polyrotaxane-biotin conjugates and surface plasmon resonance analysis of streptavidin recognition
AUTHOR(S): Ooya, Tooru; Kawashima, Tomokatsu; Yui, Nobuhiko
CORPORATE SOURCE: School of Materials Science, Japan Advanced Institute of Science and Technology, Ishikawa, 923-1292, Japan
SOURCE: Biotechnology and Bioprocess Engineering (2001), 6(4), 293-300
CODEN: BBEIAU; ISSN: 1226-8372
PUBLISHER: Korean Society for Biotechnology and Bioengineering
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A polyrotaxane-biotin conjugate was synthesized and its interaction with streptavidin measured using surface plasmon resonance (SPR) detection. A biodegradable polyrotaxane in which .apprx.22 mols. of α-cyclodextrins (α-CDs) were threaded onto a poly(ethylene oxide) chain (Mn: 4,000) capped with benzyloxycarbonyl-L-phenylalanine was conjugated with a biotin hydrazide and 2-aminoethanol after activating the hydroxyl groups of α-CDs in the polyrotaxane using N,N'-carbonyldiimidazole. The results of the high-resolution 1H-NMR (1H-NMR) spectra and gel permeation chromatog. of the conjugate showed that .apprx.11 biotin mols. were actually introduced to the polyrotaxane scaffold. An SPR anal. showed that the binding curves of the biotin mols. in the conjugate on the streptavidin-deposited surface changed in a concentration dependent manner, indicating that the biotin in the conjugate was actually recognized by streptavidin. The association equilibrium constant (Ka) of the interaction between the conjugate and streptavidin tetramer was of the order 107. These results suggest that polyrotaxane is useful for scaffolds as a polymeric ligand in biomedical fields.
REFERENCE COUNT: 41 THERE ARE 41 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 17 OF 35 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2001:825190 CAPLUS
DOCUMENT NUMBER: 137:98696
TITLE: Biodegradable polyrotaxanes aiming at biomedical and

pharmaceutical applications
AUTHOR(S): Ooya, Tooru; Yui, Nobuhiko
CORPORATE SOURCE: Japan Advanced Institute of Science and Technology, School of Materials Science, Ishikawa, 923-1292, Japan
SOURCE: Biomedical Polymers and Polymer Therapeutics, [Proceedings of the International Symposium on Frontiers in Biomedical Polymers Including Polymer Therapeutics: From Laboratory to Clinical Practice], 3rd, Biwa Lake, Japan, May 23-27, 1999 (2001), Meeting Date 1999, 75-90. Editor(s): Chiellini, Emo. Kluwer Academic/Plenum Publishers: New York, N. Y.
CODEN: 69BZMR
DOCUMENT TYPE: Conference; General Review
LANGUAGE: English
AB A review on the design of biodegradable polyrotaxanes as a novel candidate for drug carriers as well as implantable materials for tissue engineering. Poly(ethylene glycol) and α-cyclodextrin were used as main components of the polyrotaxane. The supramol. structure and dissociation of the polyrotaxanes will be the most unique characteristics when considering biomedical and pharmaceutical applications.
REFERENCE COUNT: 39 THERE ARE 39 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 18 OF 35 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2001:704221 CAPLUS
DOCUMENT NUMBER: 136:406652
TITLE: Bio-material design aiming at polyrotaxane structure
AUTHOR(S): Yui, Nobuhiko; Ooya, Tooru
CORPORATE SOURCE: Graduate School of material Science, Japan Advanced Institute of Science and Technology, Japan
SOURCE: Mirai Zairyo (2001), 1(3), 26-32
CODEN: MZIABA
PUBLISHER: Enu-Ti-Esu
DOCUMENT TYPE: Journal; General Review
LANGUAGE: Japanese
AB A review. This article reviews the potential of polyrotaxane in drug delivery system and tissue engineering with the description of their unique structure properties.

L7 ANSWER 19 OF 35 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2000:846509 CAPLUS
DOCUMENT NUMBER: 134:183381
TITLE: Synthesis and characterization of an oligopeptide-terminated polyrotaxane as a drug carrier
AUTHOR(S): Ooya, Tooru; Arizono, Koichi; Yui, Nobuhiko
CORPORATE SOURCE: School of Materials Science, Japan Advanced Institute of Science and Technology, Ishikawa, 923-1292, Japan
SOURCE: Polymers for Advanced Technologies (2000), 11(8-12), 642-651
CODEN: PADTE5; ISSN: 1042-7147
PUBLISHER: John Wiley & Sons Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A polyrotaxane consisting of α-cyclodextrins (α-CDs) and α,ω-di(glycylglycyne) polyoxyethylene (α,ω-di(Gly-Gly)-PEG) capped with tyrosine was synthesized as a drug carrier and its in vitro degradation by aminopeptidase M was demonstrated. α,ω-Di(Gly-Gly)-PEG was prepared by condensation reaction between terminal amino-groups in α-(3-aminopropyl)-ω-(3-aminopropyl) polyoxyethylene and succinimide ester of N-tert-butyloxycarbonyl (Boc)-Gly-Gly, followed by the deprotection of Boc group via acidic hydrolysis. A polypseudorotaxane consisting of α-CDs and

α,ω-di(Gly-Gly)-PEG was prepared in the mixture of water and dimethylsulfoxide. The polyrotaxane was successfully synthesized by condensation reaction between the amino-groups in the pseudopolyrotaxane and p-nitrophenyl ester of carbobenzoxy L-tyrosine. The addition of 1-hydroxy-1H-benzotriazole on the reaction was found to increase the yield and the number of α-CDs in the polyrotaxane. Hydroxypropylation of the polyrotaxane improved the solubility in aqueous solns. and many kinds of organic solvents. In vitro degradation of the hydroxypropylated (HP-)polyrotaxane revealed that HP-α-CDs in the HP-polyrotaxane were released in the presence of aminopeptidase M. These results suggest that the supramol. dissociation will be triggered by the action of extra-cellular enzymes and lead to a new mechanism of drug release from polymeric drug carriers.

REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 20 OF 35 CAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2000:341389 CAPLUS
DOCUMENT NUMBER: 133:139965
TITLE: Supramolecular-structured polymers for drug delivery
AUTHOR(S): Ooya, Tooru; Yui, Nobuhiko
CORPORATE SOURCE: School of Materials Science, Japan Advanced Institute of Science and Technology, Ishikawa, 923-1292, Japan
SOURCE: ACS Symposium Series (2000), 752(Controlled Drug Delivery), 375-384
CODEN: ACSMC8; ISSN: 0097-6156
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English

AB A review, with 25 refs. Polyrotaxanes as a supramol.-structured polymer were characterized aiming at a drug carrier, a drug permeation enhancer, an implantable material, and a stimuli-responsive material. Biodegradable polyrotaxanes exhibit their supramol. architectures: many α-cyclodextrins (α-CDs) are threaded onto a single poly(ethylene glycol) (PEG) chain capped with biodegradable bulky end-groups. Further, a stimuli-responsive polyrotaxane, in which many β-CDs are threaded onto a triblock-copolymer of PEG and poly(propylene glycol) (PPG) capped with fluorescein-4-isothiocyanate, was designed as a novel smart material.

REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 21 OF 35 CAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2000:331609 CAPLUS
TITLE: Peptide rotaxanes as potential drug delivery systems.
AUTHOR(S): Leigh, David A.; van Meurs, Sandra; Slater, Martin J.; Murphy, Aden
CORPORATE SOURCE: Centre for Supramolecular and Macromolecular Chemistry, University of Warwick, Coventry, CV4 7AL, UK
SOURCE: Book of Abstracts, 219th ACS National Meeting, San Francisco, CA, March 26-30, 2000 (2000), MEDI-008. American Chemical Society: Washington, D. C.
CODEN: 69CLAC
DOCUMENT TYPE: Conference; Meeting Abstract
LANGUAGE: English

AB The discovery of a simple hydrogen bonding template for rotaxane formation has led to investigations into the potential of using rotaxanes of biol. active peptides as novel drug

delivery systems. Here we describe how rotaxane formation imparts enzyme stability upon the peptide and how manipulation of the solubility and transport properties can be achieved through functionalisation of the rotaxane macrocycle.

L7 ANSWER 22 OF 35 BIOSIS COPYRIGHT (c) 2008 The Thomson Corporation on STN
ACCESSION NUMBER: 2000:222509 BIOSIS
DOCUMENT NUMBER: PREV200000222509
TITLE: Peptide rotaxanes as potential drug delivery systems.
AUTHOR(S): Leigh, David A. [Reprint author]; van Meurs, Sandra [Reprint author]; Slater, Martin J.; Murphy, Aden [Reprint author]
CORPORATE SOURCE: Centre for Supramolecular and Macromolecular Chemistry, Department of Chemistry, University of Warwick, Gibbet Hill Road, Coventry, CV4 7AL, UK
SOURCE: Abstracts of Papers American Chemical Society, (2000) Vol. 219, No. 1-2, pp. MEDI 8. print.
Meeting Info.: 219th Meeting of the American Chemical Society. San Francisco, California, USA. March 26-30, 2000. American Chemical Society.
CODEN: ACSRAL. ISSN: 0065-7727.
DOCUMENT TYPE: Conference; (Meeting)
Conference; Abstract; (Meeting Abstract)
LANGUAGE: English
ENTRY DATE: Entered STN: 31 May 2000
Last Updated on STN: 5 Jan 2002

L7 ANSWER 23 OF 35 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1999:453602 CAPLUS
DOCUMENT NUMBER: 132:69125
TITLE: Polyrotaxanes: synthesis, structure, and potential in drug delivery
AUTHOR(S): Ooya, Tooru; Yui, Nobuhiko
CORPORATE SOURCE: School of Materials Science, Japan Advanced Institute of Science and Technology, Ishikawa, 923-1292, Japan
SOURCE: Critical Reviews in Therapeutic Drug Carrier Systems (1999), 16(3), 289-330
CODEN: CRTSEO; ISSN: 0743-4863
PUBLISHER: Begell House, Inc.
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English
AB This article reviews with 91 refs. the potential of polyrotaxanes in drug delivery with the historical background of polyrotaxane syntheses. Pseudopolyrotaxanes and polyrotaxanes, including classifications, synthetic methods, structures and phys. properties are discussed in the first section. The second section provides our concept of drug carriers using drug-polyrotaxane conjugates in comparison with conventional drug-polymer conjugates. The third and fourth sections describe the synthetic method for biodegradable polyrotaxanes, the conjugation with drugs, and their association under physiol. conditions. The fifth section discusses other possibilities for the polyrotaxanes such as drug penetration enhancers. These studies suggest the potential of polyrotaxanes in pharmaceutical applications.
REFERENCE COUNT: 91 THERE ARE 91 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 24 OF 35 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1999:653460 CAPLUS
DOCUMENT NUMBER: 132:141754
TITLE: Biodegradable polyrotaxanes as a drug carrier

AUTHOR(S): Ooya, T.; Yui, N.
CORPORATE SOURCE: School of Materials Science, Japan Advanced Institute of Science and Technology, Ishikawa, 923-1292, Japan
SOURCE: S.T.P. Pharma Sciences (1999), 9(1), 129-138
CODEN: STSSE5; ISSN: 1157-1489
PUBLISHER: Editions de Sante
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English
AB A review with 51 refs. This article reviews our concept of drug delivery systems using drug/polyrotaxane conjugates as drug carriers. The biodegradable polyrotaxanes exhibit their supramol. architectures: many α-cyclodextrins are threaded onto a single poly(ethylene glycol) chain capped with biodegradable bulky end-groups. The synthetic method of the polyrotaxanes, the conjugation with drugs, and their association nature in a physiol. condition are described. The supramol. dissociation of the drug/polyrotaxane conjugates via terminal peptide cleavage by a hydrolytic enzyme is discussed in relation to their association nature. Through these studies, advantages of drug/polyrotaxane conjugates as drug carriers are suggested in comparison with conventional drug/polymer conjugates.
REFERENCE COUNT: 51 THERE ARE 51 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 25 OF 35 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1999:539755 CAPLUS
TITLE: Peptido[2]rotaxanes with oligosaccharide stoppers: A model system for controlled peptide drug delivery.
AUTHOR(S): Leigh, David A.; Nepogodiev, Sergey A.
CORPORATE SOURCE: Department of Chemistry, University of Warwick, Coventry, CV4 7AL, UK
SOURCE: Book of Abstracts, 218th ACS National Meeting, New Orleans, Aug. 22-26 (1999), CARB-022.
American Chemical Society: Washington, D. C.
CODEN: 67ZJA5
DOCUMENT TYPE: Conference; Meeting Abstract
LANGUAGE: English
AB For efficient application as drugs, potent oligopeptides must overcome a number of phys. and enzymic barriers presented. Amongst these are the susceptibility of peptides to the action of hydrolytic enzymes and their poor membrane transport properties. Temporary encapsulation of peptides by a macrocycle in the form of [2]rotaxanes is proposed as a possible solution to these problems. For application as a drug delivery systems one of the stoppers attached to the end of oligopeptide thread should be degradable under physiol. conditions allowing the 'slippage' of the macrocycle. We investigated the application of oligosaccharides as biodegradable stoppers for [2] rotaxanes based on GlyGly. [2]Rotaxanes 1 and 2a were prepared through the 'clipping' strategy. After deprotection of the sugar portions of these compds. only rotaxane 2b was stable. The disassembling of 2b can be achieved through the action of a-mannosidases.

L7 ANSWER 26 OF 35 BIOSIS COPYRIGHT (c) 2008 The Thomson Corporation on STN
ACCESSION NUMBER: 1999:412609 BIOSIS
DOCUMENT NUMBER: PREV199900412609
TITLE: Peptido(2)rotaxanes with oligosaccharide stoppers: A model system for controlled peptide drug delivery.
AUTHOR(S): Leigh, David A. [Reprint author]; Nepogodiev, Sergey A. [Reprint author]
CORPORATE SOURCE: Department of Chemistry, University of Warwick, Coventry,

CV4 7AL, UK
SOURCE: Abstracts of Papers American Chemical Society, (1999) Vol. 218, No. 1-2, pp. CARB 22. print.
Meeting Info.: 218th National Meeting of the American Chemical Society, Parts 1 and 2. New Orleans, Louisiana, USA. August 22-26, 1999. American Chemical Society.
CODEN: ACSRAL. ISSN: 0065-7727.
DOCUMENT TYPE: Conference; (Meeting)
Conference; Abstract; (Meeting Abstract)
LANGUAGE: English
ENTRY DATE: Entered STN: 8 Oct 1999
Last Updated on STN: 8 Oct 1999

L7 ANSWER 27 OF 35 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1998:666077 CAPLUS
DOCUMENT NUMBER: 129:331307
TITLE: Supramolecular dissociation of biodegradable polyrotaxanes by enzymic terminal hydrolysis
AUTHOR(S): Ooya, Tooru; Yui, Nobuhiko
CORPORATE SOURCE: School Materials Sci., Japan Advanced Inst. Sci. Technol., Ishikawa, 923, Japan
SOURCE: Macromolecular Chemistry and Physics (1998), 199(10), 2311-2320
CODEN: MCHPES; ISSN: 1022-1352
PUBLISHER: Huethig & Wepf Verlag
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Supramol. dissociation of biodegradable polyrotaxanes via terminal hydrolysis by an enzyme (papain) in vitro was investigated in relation to their solution properties. The polyrotaxanes were synthesized by the introduction of L-phenylalanine (L-Phe) at both ends of an inclusion complex consisting of α-cyclodextrins (α-CDs) and amino-terminated poly(ethylene glycol) (PEG) via peptide linkages, followed by the hydroxypropylation of α-CDs. From static and dynamic light scattering studies, it was clarified that the polyrotaxanes form a loosely packed association but L-Phe-terminated PEGs form a tightly packed association Further, the polyrotaxanes were found to maintain their rod-like structures in physiol. conditions. In vitro degradation expts. using papain revealed that the terminal hydrolysis of the polyrotaxanes is completed and accompanied by the release of hydroxypropylated α-CDs, and this behavior is not affected by the association number of the polyrotaxanes. On the other hand, the terminal hydrolysis of L-Phe-terminated PEG is limited under similar conditions. From these results, the complete dissociation of the polyrotaxanes by hydrolysis is considered to be due to the loosely packed association, presumably related to the rod-like structure. The potential for drug delivery is discussed.

L7 ANSWER 28 OF 35 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1997:664215 CAPLUS
DOCUMENT NUMBER: 127:351269
TITLE: Transdermal absorption accelerators and their preparation
INVENTOR(S): Yui, Nobuhiko
PATENT ASSIGNEE(S): Yui, Nobuhiko, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 09263547	A	19971007	JP 1996-76491	19960329 <--
JP 3704194	B2	20051005		

PRIORITY APPLN. INFO.: JP 1996-76491 19960329

AB The title accelerators comprise several hydroxypropylated α-, β-, or γ-cyclodextrin mols. whose cavities are occupied by biodegradable group-terminated linear macromols., and are prepared by (A) treatment of Z-L-Phe with N-hydroxysuccinimide (N-HOSu), (B) addition of α,ω-di(3-aminopropyl)-polyoxyethylene to an aqueous cyclodextrin solution, (C) addition of the resulting pseudopolyrotaxane to a solution of Z-L-Phe-OSu obtained in the process A, (D) hydroxypropylation of the resulting Z-L-Phe-polyrotaxane, and optional (E) deprotection of the Z group by reduction The accelerators cause no cytotoxicity, skin irritation, or inflammation. Hydroxypropylated Z-L-Phe-polyrotaxane significantly enhanced transdermal absorption of indomethacin in isolated rat skin.

L7 ANSWER 29 OF 35 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1997:664211 CAPLUS
DOCUMENT NUMBER: 127:351268
TITLE: Indomethacin topical preparations containing biodegradable polymer assembly having supramolecular structure
INVENTOR(S): Yui, Nobuhiko
PATENT ASSIGNEE(S): Toko Yakuhin Kogyo K. k., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 09263535	A	19971007	JP 1996-76490	19960329 <--
JP 3830198	B2	20061004		

PRIORITY APPLN. INFO.: JP 1996-76490 19960329

AB The topical preparation contains indomethacin (I) and a biodegradable polymer assembly having a supramol. structure which comprises a number of α-, β-, or γ-cyclodextrin, a linear polymer penetrating through the hollows of the cyclodextrins, and biodegradable moieties bonded to both ends of the polymer. The unique polymer assembly improves transdermal absorption of drugs without causing skin irritation and toxicity. A saturated α-cyclodextrin solution was treated with PEG 4000BA [α-(3-aminopropyl)-ω-(3-aminopropoxy)poly(oxyethylene)] and the resulting turbid solution was ultrasonicated then let stand overnight to give a pseudopolyrotaxane comprising 35-40 cyclodextrin mols. and a threading polyoxyethylene chain. The pseudopolyrotaxane was treated with a DMS solution of Z-L-Phe-Su, prepared from carbobenzoxy-L-phenylalanine and N-hydroxysuccinimide, to give Z-L-Phe-polyrotaxane. This was hydroxypropylated with propylene oxide, followed by deprotection of carbobenzoxy group. Permeation of I through a sheet of hairless mouse skin pretreated with the hydroxypropylated polyrotaxane was 19.27 μg/cm3 for 8 h, vs. 9.10 μg/cm3 for a control using H2O as pretreatment agent.

L7 ANSWER 30 OF 35 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1997:463672 CAPLUS
DOCUMENT NUMBER: 127:126414
TITLE: Peptide-biodegradable polyrotaxane conjugate as a peptide delivery system
AUTHOR(S): Ooya, Tooru; Yui, Nobuhiko

CORPORATE SOURCE: Japan Advanced Institute of Science and Technology, Tatsunokuchi, 923-12, Japan
SOURCE: Proceedings of the International Symposium on Controlled Release of Bioactive Materials (1997), 24th, 459-460
CODEN: PCRMEY; ISSN: 1022-0178
PUBLISHER: Controlled Release Society, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A peptide conjugate with supramol. assembly was prepared, and physicochem. stability was evaluated. The conjugate has supramol. structure and 2 amino groups of insulin were modified. Further, conformational change of insulin was prevented by the modification. It is suggested that his supramol. conjugate is feasible as a peptide drug carrier.

L7 ANSWER 31 OF 35 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1997:339997 CAPLUS
DOCUMENT NUMBER: 127:70694
TITLE: Synthesis and characterization of biodegradable polyrotaxane as a novel supramolecular-structured drug carrier
AUTHOR(S): Ooya, Tooru; Yui, Nobuhiko
CORPORATE SOURCE: School of Materials Science, Japan Advanced Institute of Science and Technology, Tatsunokuchi, Ishikawa, 923-12, Japan
SOURCE: Journal of Biomaterials Science, Polymer Edition (1997), 8(6), 437-455
CODEN: JBSEEA; ISSN: 0920-5063
PUBLISHER: VSP
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Polyrotaxanes were synthesized as novel biodegradable polymers with supramol. assembly and their properties evaluated in vitro. The synthesis of biodegradable polyrotaxanes consists of three steps: preparation of an inclusion complex consisting of α-cyclodextrins (α-CDs) and amino-terminated poly(ethylene glycol) (PEG); introduction of L-phenylalanine (L-Phe) at each complex terminal via peptide linkages; and hydroxypropylation of α-CDs in the polyrotaxanes. Succinimide ester of benzyloxycarbonyl-L-Phe was condensed with the terminal amino groups of the inclusion complex. 1H-NMR and GPC results showed that α-CDs were threaded onto a PEG chain and L-Phe moieties were introduced at each terminal of the PEG chain. Further, the amount of threaded α-CDs was found to be governed by the mol. weight of PEG. The hydroxypropylation of α-CDs improved the solubility of the polyrotaxanes in PBS (pH 7.4). The hydroxypropylated (HP-) polyrotaxanes were characterized by terminal peptide cleavage using papain. In vitro degradation of HP-polyrotaxanes revealed that HP-α-CDs threaded onto a PEG chain were released only when terminal peptide linkages were cleaved. Moreover, threaded HP-α-CDs chain were released only when terminal peptide linkages were cleaved. Moreover, threaded HP-α-CDs onto a PEG chain was found to be completely released. Kinetics of terminal peptide cleavage were also evaluated by catalytic efficiency (kcat/Km). The kcat/Km values were found to be independent of the mol. weight of HP-polyrotaxanes but to be affected by terminal hydrophobic moieties. It is proposed that our designed polyrotaxanes are feasible as novel drug carriers.
REFERENCE COUNT: 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 32 OF 35 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1997:117230 CAPLUS
DOCUMENT NUMBER: 126:229499
TITLE: Interaction of supramolecular assembly with hairless

rat stratum corneum
AUTHOR(S): Kamimura, Wataru; Ooya, Tooru; Yui, Nobuhiko
CORPORATE SOURCE: Sch. Mater. Sci., Japan Ad. Inst. Sci. Technol., Ishikawa, 923-12, Japan
SOURCE: Journal of Controlled Release (1997), 44(2,3), 295-299
CODEN: JCREEC; ISSN: 0168-3659
PUBLISHER: Elsevier
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Polyrotaxanes are well known as a supramol. assembly in which many cyclic compds. are threaded onto a linear polymeric chain capped with bulky end-groups. In this paper, a polyrotaxane consisting of α-CDs and PEG capped with biodegradable peptide moieties was synthesized, and the interaction with stratum corneum of hairless rat skin was examined by means of a differential scanning calorimetry. The hydroxypropylated polyrotaxane was found to interact with lipid components in the stratum corneum: bound water content was significantly decreased although ordered lipid bilayers were maintained. Thus, it is suggested that our designed polyrotaxane can be feasible as novel candidates for transdermal penetration enhancers.

L7 ANSWER 33 OF 35 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1996:377201 CAPLUS
DOCUMENT NUMBER: 125:41804
TITLE: Biodegradable medicinal polymer assembly with supermolecular structure
INVENTOR(S): Yui, Nobuhiko
PATENT ASSIGNEE(S): Japan
SOURCE: PCT Int. Appl., 15 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9609073	A1	19960328	WO 1995-JP909	19950512 <--
W: AU, BB, BG, BR, BY, CA, CN, CZ, EE, FI, GE, HU, IS, KG, KR, KZ, LK, LR, LT, LV, MD, MG, MN, MX, NO, NZ, PL, RO, RU, SG, SI, SK, TJ, TM, TT, UA, UG, US, UZ, VN				
RW: KE, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
JP 08092130	A	19960409	JP 1994-254872	19940924 <--
JP 3699141	B2	20050928		
CA 2176383	A1	19960328	CA 1995-2176383	19950512 <--
AU 9524199	A	19960409	AU 1995-24199	19950512 <--
EP 730869	A1	19960911	EP 1995-918178	19950512 <--
EP 730869	B1	20010627		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE				
CN 1135720	A	19961113	CN 1995-190936	19950512 <--
AT 202486	T	20010715	AT 1995-918178	19950512 <--
US 5855900	A	19990105	US 1996-637733	19960426 <--

PRIORITY APPLN. INFO.: JP 1994-254872 A 19940924
WO 1995-JP909 W 19950512

AB The invention relates to a highly water-soluble polymer having arbitrarily controllable drug-carrying capacity and drug-releasing characteristics and serving as a novel drug carrier widely applicable in vivo; and a biodegradable medicinal polymer assembly having a supermol. structure and being capable of releasing a drug in response to a specific biodegrdn.

occurring in each disease. The assembly comprises a number of drug-carrying cyclic compds. prepared by binding a drug to α, β or γ-cyclodextrin, a linear polymer penetrating through the hollows of the cyclic compds., and biodegradable moieties bonded to both ends of the polymer. A biodegradable medicinal polymer assembly with supermol. structure for mitomycin C delivery is given as an example.

L7 ANSWER 34 OF 35 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1996:489035 CAPLUS
DOCUMENT NUMBER: 125:177188
TITLE: Novel design of supramolecular-structured biodegradable polymer for drug delivery
AUTHOR(S): Yui, Nobuhiko; Ooya, Tooru
CORPORATE SOURCE: Sch. Materials Science, JAIST, Ishikawa, 923-12, Japan
SOURCE: Advanced Biomaterials in Biomedical Engineering and Drug Delivery Systems, [Iketani Conference on Biomedical Polymers], 5th, Kagoshima, Japan, Apr. 18-22, 1995 (1996), Meeting Date 1995, 333-334. Editor(s): Ogata, Naoya. Springer: Tokyo, Japan.
CODEN: 63CXA6
DOCUMENT TYPE: Conference
LANGUAGE: English
AB Biodegradable polymers with supramol. structures were proposed as a novel candidate of substrates for temporal drug delivery. A biodegradable polyrotaxane was synthesized in which α-cyclodextrins (α-CDs) as drug carriers were threaded onto a poly(ethylene glycol) (PEG) chain capped at each terminal with L-phenylalanine (L-Phe) via peptide linkages. The release of α-CDs from the biodegradable polyrotaxane was observed only when the terminal peptide linkages were hydrolyzed by papain. Further, the dethreading process of α-CDs from PEG chains was also observed to be quite rapid. Therefore, it is suggested that α-CD release from the biodegradable polyrotaxane was controlled by the hydrolysis of terminal peptide linkages.

L7 ANSWER 35 OF 35 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1996:267862 CAPLUS
DOCUMENT NUMBER: 125:41536
TITLE: Biodegradable polyrotaxanes for drug delivery
AUTHOR(S): Yui, Nobuhiko
CORPORATE SOURCE: Grad, Sch., Hokuniku Univ., Japan
SOURCE: Kobunshi (1996), 45(4), 263
CODEN: KOBUA3; ISSN: 0454-1138
PUBLISHER: Kobunshi Gakkai
DOCUMENT TYPE: Journal; General Review
LANGUAGE: Japanese
AB A review with 5 refs. discussing biodegradable polyrotaxanes for use in drug delivery systems.

=> s l7 and (targeted or antibody)
L8 0 L7 AND (TARGETED OR ANTIBODY)

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=> s ?rotaxane
L9        3154 ?ROTAXANE

=> s l9 (l) drug and target
L10          1 L9 (L) DRUG AND TARGET

=> d l10

L10  ANSWER 1 OF 1  CAPLUS  COPYRIGHT 2008 ACS on STN
AN   2003:717792  CAPLUS
DN   139:224476
TI   Multivalently interactive molecular assembly, capturing agent, drug
     carrier, calcium chelating agent, and drug enhancer
IN   Yui, Nobuhiko; Maruyama, Atsushi; Ooya, Tooru
PA   Japan
SO   U.S. Pat. Appl. Publ., 33 pp.
     CODEN: USXXCO
DT   Patent
LA   English
FAN.CNT 2
     PATENT NO.          KIND   DATE        APPLICATION NO.         DATE
     ---------------     ----   --------    --------------------    --------
PI   US 2003171573        A1    20030911    US 2002-230394          20020829
     JP 2004027183        A     20040129    JP 2003-51163           20030227
     US 2004162275        A1    20040819    US 2003-679499          20031007
PRAI JP 2002-52474        A     20020227
     US 2002-230394       A     20020829


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DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)          SINCE FILE      TOTAL
                                                         ENTRY    SESSION
CA SUBSCRIBER PRICE                                     -25.60     -25.60

=> s rotaxane (s) drug
L11         34 ROTAXANE (S) DRUG

=> dup rem
ENTER L# LIST OR (END):l11
PROCESSING COMPLETED FOR L11
L12          34 DUP REM L11 (0 DUPLICATES REMOVED)

=> s l12 and py<=2003
L13         20 L12 AND PY<=2003

=> d l13 ibib abs 1-20

L13  ANSWER 1 OF 20  CAPLUS  COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER:         2004:681395  CAPLUS
DOCUMENT NUMBER:          141:195314
TITLE:                    Multivalently interactive molecular assembly,
                          capturing agent, drug carrier, calcium chelating
                          agent, and drug enhancer
INVENTOR(S):              Yui, Nobuhiko; Maruyama, Atsushi; Ooya, Tooru
PATENT ASSIGNEE(S):       Japan
SOURCE:                   U.S. Pat. Appl. Publ., 47 pp., Cont.-in-part of U.S.
                          Pat. Appl. 2003 171,573.
                          CODEN: USXXCO
DOCUMENT TYPE:            Patent
LANGUAGE:                 English
FAMILY ACC. NUM. COUNT:   2
PATENT INFORMATION:

     PATENT NO.          KIND   DATE        APPLICATION NO.         DATE
     ---------------     ----   --------    --------------------    --------
     US 2004162275        A1    20040819    US 2003-679499          20031007
     US 2003171573        A1    20030911    US 2002-230394          20020829 <--
PRIORITY APPLN. INFO.:                      JP 2002-52474        A  20020227
                                            US 2002-230394       B2 20020829
AB   A multivalently interactive mol. assembly having a plurality of functional
     groups or ligands, in which a ratio between Rh and Rg expressed as Rh/Rg
     is 1.0 or less.  Here, Rh is a hydrodynamic radius calculated from dynamic
     light scattering (DLS) assay performed in aqueous solution; and Rg is a radius
of
     gyration determined based on the Zimm plot generated using data obtained by
     static light scattering (SLS) assay.  A polyrotaxane was prepared from
     α-cyclodextrin and diamino-PEG and reacted with Z-L-Phe succinimide
     ester.  Then biotin mols. were introduced into the polyrotaxane mol.
```

Examples were given of anal. of biotin-polyrotaxane conjugate binding to streptavidin-immobilized surface using surface plasmon resonance. Trypsin activity inhibition and Ca chelating activities of polyrotaxanes were also given.

L13 ANSWER 2 OF 20 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2003:819708 CAPLUS
DOCUMENT NUMBER: 140:391507
TITLE: Rotaxane dendrimers
AUTHOR(S): Lee, Jae Wook; Kim, Kimoon
CORPORATE SOURCE: Department of Chemistry, Dong-A University, Pusan, 604-714, S. Korea
SOURCE: Topics in Current Chemistry (2003), 228(Dendrimers V), 111-140
CODEN: TPCCAQ; ISSN: 0340-1022
PUBLISHER: Springer-Verlag
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English
AB A review. The synthesis, properties, and potential applications of rotaxane dendrimers, dendritic mols. containing rotaxane-like mech. bonds to link their components are described. Rotaxane dendrimers are classified into three types depending on where rotaxane-like features are introduced - Type I, II, and III rotaxane dendrimers which incorporate rotaxane-like features at the core, termini, and branches, resp. Several different types of macrocycles are employed as the ring component in the templated synthesis of rotaxane dendrimers. In the synthesis of rotaxane dendrimers, several aspects should be carefully considered, including the binding affinity of the macrocycle (ring) and guest (rod). The properties of these rotaxane dendrimers are quite different from those of the individual rotaxanes or dendrimers and often a blend of both. Potential applications of rotaxane dendrimers include mol. nanoreactors, drug delivery, and gene delivery.
REFERENCE COUNT: 69 THERE ARE 69 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 3 OF 20 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2003:717792 CAPLUS
DOCUMENT NUMBER: 139:224476
TITLE: Multivalently interactive molecular assembly, capturing agent, drug carrier, calcium chelating agent, and drug enhancer
INVENTOR(S): Yui, Nobuhiko; Maruyama, Atsushi; Ooya, Tooru
PATENT ASSIGNEE(S): Japan
SOURCE: U.S. Pat. Appl. Publ., 33 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE	
US 2003171573	A1	20030911	US 2002-230394		20020829	<--
JP 2004027183	A	20040129	JP 2003-51163		20030227	
US 2004162275	A1	20040819	US 2003-679499		20031007	
PRIORITY APPLN. INFO.:			JP 2002-52474	A	20020227	
			US 2002-230394	A	20020829	

AB The invention relates to a multivalently interactive mol. assembly which can effectively and stably bind to a target substance in vivo or in vitro, a capturing agent comprising said multivalently interactive mol. assembly for capturing an object of interest in vivo or in vitro, a drug carrier which aids administration of a drug, a calcium chelating agent which can

effectively chelate calcium, and a drug enhancer which can be administered with a drug to assist in e.g. absorption of the drug. The invention discloses a multivalently interactive mol. assembly having a plurality of functional groups or ligands, in which a ratio between Rh and Rg expressed as Rh/Rg is 1.0 or less. Here, Rh is a hydrodynamic radius calculated from a dynamic light scattering assay performed in aqueous solution, and Rg is a radius of gyration determined based on the Zimm plot generated using data obtained by a static light scattering assay. Specifically, the invention discloses polyrotaxanes, the synthesis of which is described.

L13 ANSWER 4 OF 20 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2002:691806 CAPLUS
DOCUMENT NUMBER: 138:343544
TITLE: Supramolecular design aiming at intelligent DDS
AUTHOR(S): Yui, Nobuhiko
CORPORATE SOURCE: Japan
SOURCE: Kino Zairyo (2002), 22(8), 28-34
CODEN: KIZAEP; ISSN: 0286-4835
PUBLISHER: Shi Emu Shi Shuppan
DOCUMENT TYPE: Journal; General Review
LANGUAGE: Japanese
AB A review on intelligent drug delivery system (DDS). Topics discussed are design of biomaterial containing polyrotaxane, multivalent interaction between the polyrotaxane and cell membrane receptors, design of hydrogel containing inclusion complex of α-cyclodextrin with poly(ε-lysine) and biodegradable polyrotaxane hydrogel, and supermol. design of nano-scale biomaterial for DDS.

L13 ANSWER 5 OF 20 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2001:553147 CAPLUS
DOCUMENT NUMBER: 135:362419
TITLE: Polyrotaxanes with molecular recognition functions
AUTHOR(S): Ooya, Tooru
CORPORATE SOURCE: Graduate School of Material Science, Hokuriku Advanced Science and Technology University, Japan
SOURCE: Kobunshi (2001), 50(7), 456
CODEN: KOBUA3; ISSN: 0454-1138
PUBLISHER: Kobunshi Gakkai
DOCUMENT TYPE: Journal; General Review
LANGUAGE: Japanese
AB A review with refs. A review with 19 refs., on construction and structures of polyrotaxanes with mol. recognition functions for use in drug delivery system.

L13 ANSWER 6 OF 20 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2000:846509 CAPLUS
DOCUMENT NUMBER: 134:183381
TITLE: Synthesis and characterization of an oligopeptide-terminated polyrotaxane as a drug carrier
AUTHOR(S): Ooya, Tooru; Arizono, Koichi; Yui, Nobuhiko
CORPORATE SOURCE: School of Materials Science, Japan Advanced Institute of Science and Technology, Ishikawa, 923-1292, Japan
SOURCE: Polymers for Advanced Technologies (2000), 11(8-12), 642-651
CODEN: PADTE5; ISSN: 1042-7147
PUBLISHER: John Wiley & Sons Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A polyrotaxane consisting of α-cyclodextrins (α-CDs) and α,ω-di(glycylglycyne) polyoxyethylene (α,ω-di(Gly-Gly)-PEG) capped with tyrosine was synthesized as a drug carrier and its

in vitro degradation by aminopeptidase M was demonstrated. α,ω-Di(Gly-Gly)-PEG was prepared by condensation reaction between terminal amino-groups in α-(3-aminopropyl)-ω-(3-aminopropyl) polyoxyethylene and succinimide ester of N-tert-butyloxycarbonyl (Boc)-Gly-Gly, followed by the deprotection of Boc group via acidic hydrolysis. A polypseudorotaxane consisting of α-CDs and α,ω-di(Gly-Gly)-PEG was prepared in the mixture of water and dimethylsulfoxide. The polyrotaxane was successfully synthesized by condensation reaction between the amino-groups in the pseudopolyrotaxane and p-nitrophenyl ester of carbobenzoxy L-tyrosine. The addition of 1-hydroxy-1H-benzotriazole on the reaction was found to increase the yield and the number of α-CDs in the polyrotaxane. Hydroxypropylation of the polyrotaxane improved the solubility in aqueous solns. and many kinds of organic solvents. In vitro degradation of the hydroxypropylated (HP-)polyrotaxane revealed that HP-α-CDs in the HP-polyrotaxane were released in the presence of aminopeptidase M. These results suggest that the supramol. dissociation will be triggered by the action of extra-cellular enzymes and lead to a new mechanism of drug release from polymeric drug carriers.

REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 7 OF 20 CAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2000:341389 CAPLUS
DOCUMENT NUMBER: 133:139965
TITLE: Supramolecular-structured polymers for drug delivery
AUTHOR(S): Ooya, Tooru; Yui, Nobuhiko
CORPORATE SOURCE: School of Materials Science, Japan Advanced Institute of Science and Technology, Ishikawa, 923-1292, Japan
SOURCE: ACS Symposium Series (2000), 752(Controlled Drug Delivery), 375-384
CODEN: ACSMC8; ISSN: 0097-6156
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English

AB A review, with 25 refs. Polyrotaxanes as a supramol.-structured polymer were characterized aiming at a drug carrier, a drug permeation enhancer, an implantable material, and a stimuli-responsive material. Biodegradable polyrotaxanes exhibit their supramol. architectures: many α-cyclodextrins (α-CDs) are threaded onto a single poly(ethylene glycol) (PEG) chain capped with biodegradable bulky end-groups. Further, a stimuli-responsive polyrotaxane, in which many β-CDs are threaded onto a triblock-copolymer of PEG and poly(propylene glycol) (PPG) capped with fluorescein-4-isothiocyanate, was designed as a novel smart material.

REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 8 OF 20 CAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2000:331609 CAPLUS
TITLE: Peptide rotaxanes as potential drug delivery systems.
AUTHOR(S): Leigh, David A.; van Meurs, Sandra; Slater, Martin J.; Murphy, Aden
CORPORATE SOURCE: Centre for Supramolecular and Macromolecular Chemistry, University of Warwick, Coventry, CV4 7AL, UK
SOURCE: Book of Abstracts, 219th ACS National Meeting, San Francisco, CA, March 26-30, 2000 (2000), MEDI-008. American Chemical Society: Washington, D. C.
CODEN: 69CLAC

DOCUMENT TYPE: Conference; Meeting Abstract
LANGUAGE: English
AB The discovery of a simple hydrogen bonding template for rotaxane formation has led to investigations into the potential of using rotaxanes of biol. active peptides as novel drug delivery systems. Here we describe how rotaxane formation imparts enzyme stability upon the peptide and how manipulation of the solubility and transport properties can be achieved through functionalisation of the rotaxane macrocycle.

L13 ANSWER 9 OF 20 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1999:653460 CAPLUS
DOCUMENT NUMBER: 132:141754
TITLE: Biodegradable polyrotaxanes as a drug carrier
AUTHOR(S): Ooya, T.; Yui, N.
CORPORATE SOURCE: School of Materials Science, Japan Advanced Institute of Science and Technology, Ishikawa, 923-1292, Japan
SOURCE: S.T.P. Pharma Sciences (1999), 9(1), 129-138
CODEN: STSSE5; ISSN: 1157-1489
PUBLISHER: Editions de Sante
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English
AB A review with 51 refs. This article reviews our concept of drug delivery systems using drug/polyrotaxane conjugates as drug carriers. The biodegradable polyrotaxanes exhibit their supramol. architectures: many α-cyclodextrins are threaded onto a single poly(ethylene glycol) chain capped with biodegradable bulky end-groups. The synthetic method of the polyrotaxanes, the conjugation with drugs, and their association nature in a physiol. condition are described. The supramol. dissociation of the drug/polyrotaxane conjugates via terminal peptide cleavage by a hydrolytic enzyme is discussed in relation to their association nature. Through these studies, advantages of drug/polyrotaxane conjugates as drug carriers are suggested in comparison with conventional drug/polymer conjugates.
REFERENCE COUNT: 51 THERE ARE 51 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 10 OF 20 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1999:539755 CAPLUS
TITLE: Peptido[2]rotaxanes with oligosaccharide stoppers: A model system for controlled peptide drug delivery.
AUTHOR(S): Leigh, David A.; Nepogodiev, Sergey A.
CORPORATE SOURCE: Department of Chemistry, University of Warwick, Coventry, CV4 7AL, UK
SOURCE: Book of Abstracts, 218th ACS National Meeting, New Orleans, Aug. 22-26 (1999), CARB-022.
American Chemical Society: Washington, D. C.
CODEN: 67ZJA5
DOCUMENT TYPE: Conference; Meeting Abstract
LANGUAGE: English
AB For efficient application as drugs, potent oligopeptides must overcome a number of phys. and enzymic barriers presented. Amongst these are the susceptibility of peptides to the action of hydrolytic enzymes and their poor membrane transport properties. Temporary encapsulation of peptides by a macrocycle in the form of [2]rotaxanes is proposed as a possible solution to these problems. For application as a drug delivery systems one of the stoppers attached to the end of oligopeptide thread should be degradable under physiol. conditions allowing the 'slippage' of the macrocycle. We investigated the application of oligosaccharides as biodegradable stoppers for [2]rotaxanes based on GlyGly. [2]Rotaxanes 1 and 2a were prepared through the 'clipping' strategy. After deprotection of the sugar portions of these compds. only rotaxane 2b was stable. The

disassembling of 2b can be achieved through the action of a-mannosidases.

L13 ANSWER 11 OF 20 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1999:453602 CAPLUS
DOCUMENT NUMBER: 132:69125
TITLE: Polyrotaxanes: synthesis, structure, and potential in drug delivery
AUTHOR(S): Ooya, Tooru; Yui, Nobuhiko
CORPORATE SOURCE: School of Materials Science, Japan Advanced Institute of Science and Technology, Ishikawa, 923-1292, Japan
SOURCE: Critical Reviews in Therapeutic Drug Carrier Systems (1999), 16(3), 289-330
CODEN: CRTSEO; ISSN: 0743-4863
PUBLISHER: Begell House, Inc.
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English
AB This article reviews with 91 refs. the potential of polyrotaxanes in drug delivery with the historical background of polyrotaxane syntheses. Pseudopolyrotaxanes and polyrotaxanes, including classifications, synthetic methods, structures and phys. properties are discussed in the first section. The second section provides our concept of drug carriers using drug-polyrotaxane conjugates in comparison with conventional drug-polymer conjugates. The third and fourth sections describe the synthetic method for biodegradable polyrotaxanes, the conjugation with drugs, and their association under physiol. conditions. The fifth section discusses other possibilities for the polyrotaxanes such as drug penetration enhancers. These studies suggest the potential of polyrotaxanes in pharmaceutical applications.
REFERENCE COUNT: 91 THERE ARE 91 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 12 OF 20 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1999:206406 CAPLUS
DOCUMENT NUMBER: 131:78242
TITLE: Synthesis of theophylline-polyrotaxane conjugates and their drug release via supramolecular dissociation
AUTHOR(S): Ooya, Tooru; Yui, Nobuhiko
CORPORATE SOURCE: School of Materials Science, Japan Advanced Institute of Science and Technology, Tatsunokuchi, Ishikawa, 923-1292, Japan
SOURCE: Journal of Controlled Release (1999), 58(3), 251-269
CODEN: JCREEC; ISSN: 0168-3659
PUBLISHER: Elsevier Science Ireland Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Theophylline-polyrotaxane conjugates were synthesized by coupling theophylline with α-cyclodextrins (α-CDs) in the polyrotaxane. The polyrotaxane is a mol. assembly in which many α-CDs are threaded onto a poly(ethylene glycol) (PEG) chain capped with L-phenylalanine (L-Phe). Theophylline-7-acetic acid was activated by coupling with 4-nitrophenol, and then ethylenediamine was allowed to react with the active ester in order to obtain N-aminoethyltheophylline-7-acetoamide. This derivative was coupled with a 4-nitrophenyl chloroformate-activated polyrotaxane to obtain the theophylline-polyrotaxane conjugates. The conjugates formed a specific association under physiol. conditions, depending upon interactions between the theophylline mols. and/or the terminal L-Phe moiety in the conjugates. In vitro degradation of the conjugates revealed that theophylline-immobilized α-CDs were completely released by hydrolysis of the terminal peptide linkage in the polyrotaxane. This result indicates that the association of the conjugates does not induce the steric hindrance but rather enhances the accessibility of enzymes to the

terminal peptide linkages. It is suggested that our designed drug-polyrotaxane conjugates can release the drugs via the dissociation of the supramol. structure without steric hindrance of enzymic accessibility to the terminal peptide linkages.

REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 13 OF 20 CAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1998:482084 CAPLUS
DOCUMENT NUMBER: 129:265277
TITLE: New approach to drug targeting using a drug-polyrotaxane conjugate
AUTHOR(S): Ooya, Tooru; Yui, Nobuhiko
CORPORATE SOURCE: Japan Advanced Institute of Science and Technology, Ishikawa, 923-1292, Japan
SOURCE: Proceedings of the International Symposium on Controlled Release of Bioactive Materials (1998), 25th, 860-861
CODEN: PCRMEY; ISSN: 1022-0178
PUBLISHER: Controlled Release Society, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A novel supramol.-structured drug conjugate using a polyrotaxane was prepared In vitro degradation of the conjugate revealed that theophylline-modified α-cyclodextrin were released by terminal hydrolysis of the polyrotaxane. The drug release via supramol. dissoln. can feasibly be used for dual drug targeting.

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 14 OF 20 CAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1998:406136 CAPLUS
DOCUMENT NUMBER: 129:78839
TITLE: Method for the formation of non-aggregating fluorescent conjugates by producing stable rotaxane-like inclusion complexes to be used in UV spectroscopy, fluorescence microscopy and flow cytometry
INVENTOR(S): Aspe, Daniel
PATENT ASSIGNEE(S): Cis Bio International, Fr.; Aspe, Daniel
SOURCE: PCT Int. Appl., 37 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: French
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9826287	A1	19980618	WO 1997-FR2288	19971212 <--
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW				
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
FR 2757162	A1	19980619	FR 1996-15261	19961212 <--
FR 2757162	B1	19990326		
CA 2272890	A1	19980618	CA 1997-2272890	19971212 <--
CA 2272890	C	20041130		

AU 9854894	A	19980703	AU 1998-54894		19971212 <--
EP 946870	A1	19991006	EP 1997-951325		19971212 <--
EP 946870	B1	20021127			
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI					
JP 2001506002	T	20010508	JP 1998-526322		19971212 <--
JP 3955638	B2	20070808			
AT 228656	T	20021215	AT 1997-951325		19971212 <--
ES 2187834	T3	20030616	ES 1997-951325		19971212 <--
US 6120987	A	20000919	US 1998-95471		19980610 <--
PRIORITY APPLN. INFO.:			FR 1996-15261	A	19961212
			WO 1997-FR2288	W	19971212

AB The invention concerns a method for obtaining a fluorescent conjugate between a binding mol. having at least an amino, hydroxy, carboxy and/or sulfydryl group and a fluorophore reagent having at least a functional group capable of reacting with said amino, hydroxy, carboxy and/or sulfydryl group(s), in the presence of an aqueous solution of a water-soluble macrocycle. The binding mol. conjugates to the fluorophore and in the presence of the macrocycle a stable rotaxane-like inclusion complex is formed; thus the aggregation of the fluorescent conjugates is prevented. The macrocycle is a cyclodextrin, a cyclodextrin derivative, or a calixarene. Reactive fluorophores are e.g. cyanine dyes, fluorescein etc. The binding mols. can be antibodies, antigens, proteins, avidin, haptens, toxins, hormones , drugs, polymers, glass, polysaccharides, nucleic acids etc. The invention also concerns the conjugates obtained by this method and their use.

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 15 OF 20 CAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1997:339997 CAPLUS

DOCUMENT NUMBER: 127:70694

TITLE: Synthesis and characterization of biodegradable polyrotaxane as a novel supramolecular-structured drug carrier

AUTHOR(S): Ooya, Tooru; Yui, Nobuhiko

CORPORATE SOURCE: School of Materials Science, Japan Advanced Institute of Science and Technology, Tatsunokuchi, Ishikawa, 923-12, Japan

SOURCE: Journal of Biomaterials Science, Polymer Edition (1997), 8(6), 437-455
CODEN: JBSEEA; ISSN: 0920-5063

PUBLISHER: VSP

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Polyrotaxanes were synthesized as novel biodegradable polymers with supramol. assembly and their properties evaluated in vitro. The synthesis of biodegradable polyrotaxanes consists of three steps: preparation of an inclusion complex consisting of α-cyclodextrins (α-CDs) and amino-terminated poly(ethylene glycol) (PEG); introduction of L-phenylalanine (L-Phe) at each complex terminal via peptide linkages; and hydroxypropylation of α-CDs in the polyrotaxanes. Succinimide ester of benzyloxycarbonyl-L-Phe was condensed with the terminal amino groups of the inclusion complex. 1H-NMR and GPC results showed that α-CDs were threaded onto a PEG chain and L-Phe moieties were introduced at each terminal of the PEG chain. Further, the amount of threaded α-CDs was found to be governed by the mol. weight of PEG. The hydroxypropylation of α-CDs improved the solubility of the polyrotaxanes in PBS (pH 7.4). The hydroxypropylated (HP-) polyrotaxanes were characterized by terminal peptide cleavage using papain. In vitro degradation of HP-polyrotaxanes revealed that HP-α-CDs threaded onto a PEG chain were released only when terminal peptide linkages were cleaved. Moreover, threaded

HP-α-CDs chain were released only when terminal peptide linkages were cleaved. Moreover, threaded HP-α-CDs onto a PEG chain was found to be completely released. Kinetics of terminal peptide cleavage were also evaluated by catalytic efficiency (kcat/Km). The kcat/Km values were found to be independent of the mol. weight of HP-polyrotaxanes but to be affected by terminal hydrophobic moieties. It is proposed that our designed polyrotaxanes are feasible as novel drug carriers.

REFERENCE COUNT: 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 16 OF 20 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1996:489035 CAPLUS
DOCUMENT NUMBER: 125:177188
TITLE: Novel design of supramolecular-structured biodegradable polymer for drug delivery
AUTHOR(S): Yui, Nobuhiko; Ooya, Tooru
CORPORATE SOURCE: Sch. Materials Science, JAIST, Ishikawa, 923-12, Japan
SOURCE: Advanced Biomaterials in Biomedical Engineering and Drug Delivery Systems, [Iketani Conference on Biomedical Polymers], 5th, Kagoshima, Japan, Apr. 18-22, 1995 (1996), Meeting Date 1995, 333-334. Editor(s): Ogata, Naoya. Springer: Tokyo, Japan.
CODEN: 63CXA6
DOCUMENT TYPE: Conference
LANGUAGE: English
AB Biodegradable polymers with supramol. structures were proposed as a novel candidate of substrates for temporal drug delivery. A biodegradable polyrotaxane was synthesized in which α-cyclodextrins (α-CDs) as drug carriers were threaded onto a poly(ethylene glycol) (PEG) chain capped at each terminal with L-phenylalanine (L-Phe) via peptide linkages. The release of α-CDs from the biodegradable polyrotaxane was observed only when the terminal peptide linkages were hydrolyzed by papain. Further, the dethreading process of α-CDs from PEG chains was also observed to be quite rapid. Therefore, it is suggested that α-CD release from the biodegradable polyrotaxane was controlled by the hydrolysis of terminal peptide linkages.

L13 ANSWER 17 OF 20 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1996:377201 CAPLUS
DOCUMENT NUMBER: 125:41804
TITLE: Biodegradable medicinal polymer assembly with supermolecular structure
INVENTOR(S): Yui, Nobuhiko
PATENT ASSIGNEE(S): Japan
SOURCE: PCT Int. Appl., 15 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9609073	A1	19960328	WO 1995-JP909	19950512 <--
W: AU, BB, BG, BR, BY, CA, CN, CZ, EE, FI, GE, HU, IS, KG, KR, KZ, LK, LR, LT, LV, MD, MG, MN, MX, NO, NZ, PL, RO, RU, SG, SI, SK, TJ, TM, TT, UA, UG, US, UZ, VN				
RW: KE, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
JP 08092130	A	19960409	JP 1994-254872	19940924 <--

JP 3699141	B2	20050928			
CA 2176383	A1	19960328	CA 1995-2176383	19950512	<--
AU 9524199	A	19960409	AU 1995-24199	19950512	<--
EP 730869	A1	19960911	EP 1995-918178	19950512	<--
EP 730869	B1	20010627			
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE					
CN 1135720	A	19961113	CN 1995-190936	19950512	<--
AT 202486	T	20010715	AT 1995-918178	19950512	<--
US 5855900	A	19990105	US 1996-637733	19960426	<--
PRIORITY APPLN. INFO.:			JP 1994-254872 A	19940924	
			WO 1995-JP909 W	19950512	

AB The invention relates to a highly water-soluble polymer having arbitrarily controllable drug-carrying capacity and drug-releasing characteristics and serving as a novel drug carrier widely applicable in vivo; and a biodegradable medicinal polymer assembly having a supermol. structure and being capable of releasing a drug in response to a specific biodegrdn. occurring in each disease. The assembly comprises a number of drug-carrying cyclic compds. prepared by binding a drug to α, β or γ-cyclodextrin, a linear polymer penetrating through the hollows of the cyclic compds., and biodegradable moieties bonded to both ends of the polymer. A biodegradable medicinal polymer assembly with supermol. structure for mitomycin C delivery is given as an example.

L13 ANSWER 18 OF 20 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1996:267862 CAPLUS
DOCUMENT NUMBER: 125:41536
TITLE: Biodegradable polyrotaxanes for drug delivery
AUTHOR(S): Yui, Nobuhiko
CORPORATE SOURCE: Grad, Sch., Hokuniku Univ., Japan
SOURCE: Kobunshi (1996), 45(4), 263
CODEN: KOBUA3; ISSN: 0454-1138
PUBLISHER: Kobunshi Gakkai
DOCUMENT TYPE: Journal; General Review
LANGUAGE: Japanese
AB A review with 5 refs. discussing biodegradable polyrotaxanes for use in drug delivery systems.

L13 ANSWER 19 OF 20 BIOSIS COPYRIGHT (c) 2008 The Thomson Corporation on STN
ACCESSION NUMBER: 2000:222509 BIOSIS
DOCUMENT NUMBER: PREV200000222509
TITLE: Peptide rotaxanes as potential drug delivery systems.
AUTHOR(S): Leigh, David A. [Reprint author]; van Meurs, Sandra [Reprint author]; Slater, Martin J.; Murphy, Aden [Reprint author]
CORPORATE SOURCE: Centre for Supramolecular and Macromolecular Chemistry, Department of Chemistry, University of Warwick, Gibbet Hill Road, Coventry, CV4 7AL, UK
SOURCE: Abstracts of Papers American Chemical Society, (2000) Vol. 219, No. 1-2, pp. MEDI 8. print.
Meeting Info.: 219th Meeting of the American Chemical Society. San Francisco, California, USA. March 26-30, 2000. American Chemical Society.
CODEN: ACSRAL. ISSN: 0065-7727.
DOCUMENT TYPE: Conference; (Meeting)
Conference; Abstract; (Meeting Abstract)
LANGUAGE: English
ENTRY DATE: Entered STN: 31 May 2000
Last Updated on STN: 5 Jan 2002

L13 ANSWER 20 OF 20 BIOSIS COPYRIGHT (c) 2008 The Thomson Corporation on

STN

ACCESSION NUMBER: 1999:412609 BIOSIS
DOCUMENT NUMBER: PREV199900412609
TITLE: Peptido(2)rotaxanes with oligosaccharide stoppers: A model system for controlled peptide drug delivery.
AUTHOR(S): Leigh, David A. [Reprint author]; Nepogodiev, Sergey A. [Reprint author]
CORPORATE SOURCE: Department of Chemistry, University of Warwick, Coventry, CV4 7AL, UK
SOURCE: Abstracts of Papers American Chemical Society, (1999) Vol. 218, No. 1-2, pp. CARB 22. print.
Meeting Info.: 218th National Meeting of the American Chemical Society, Parts 1 and 2. New Orleans, Louisiana, USA. August 22-26, 1999. American Chemical Society.
CODEN: ACSRAL. ISSN: 0065-7727.
DOCUMENT TYPE: Conference; (Meeting)
Conference; Abstract; (Meeting Abstract)
LANGUAGE: English
ENTRY DATE: Entered STN: 8 Oct 1999
Last Updated on STN: 8 Oct 1999

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 NEWS  4  JUL 28   IFICDB, IFIPAT, and IFIUDB reloaded with enhancements
 NEWS  5  JUL 28   STN Viewer performance improved
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                   to be discontinued
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                   and Korean patents enhanced
 NEWS 14  SEP 29   IFICLS enhanced with new super search field
 NEWS 15  SEP 29   EMBASE and EMBAL enhanced with new search and
                   display fields
 NEWS 16  SEP 30   CAS patent coverage enhanced to include exemplified
                   prophetic substances identified in new Japanese-
                   language patents
 NEWS 17  OCT 07   EPFULL enhanced with full implementation of EPC2000
 NEWS 18  OCT 07   Multiple databases enhanced for more flexible patent
                   number searching
 NEWS 19  OCT 22   Current-awareness alert (SDI) setup and editing
                   enhanced
 NEWS 20  OCT 22   WPIDS, WPINDEX, and WPIX enhanced with Canadian PCT
                   Applications
 NEWS 21  OCT 24   CHEMLIST enhanced with intermediate list of
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L1 2986 ROTAXANE

=> s l1 and (cancer or tumor or neoplasm)
L2 12 L1 AND (CANCER OR TUMOR OR NEOPLASM)

=> d l2 ibib abs 1-12

L2 ANSWER 1 OF 12 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2008:390632 CAPLUS
TITLE: Host-rotaxane as cellular transport agents with an enzymatic switch
AUTHOR(S): Lunn, Jennifer H.; Smithrud, David B.
CORPORATE SOURCE: Department of Chemistry, University of Cincinnati, Cincinnati, OH, 45221, USA
SOURCE: Abstracts of Papers, 235th ACS National Meeting, New Orleans, LA, United States, April 6-10, 2008 (2008), ORGN-611. American Chemical Society: Washington, D. C.
CODEN: 69KNN3
DOCUMENT TYPE: Conference; Meeting Abstract; (computer optical disk)
LANGUAGE: English
AB The binding domain of an antibody is a paradigm for the development of a synthetic host. Host-rotaxanes combine recognition elements in a similar convergent arrangement as found with antibodies. Besides forming tight complexes with various guests, host-rotaxanes are highly efficient cellular transport agents. The rotaxane operates through a passive transport mechanism, so there is no control over what cell it enters. We are currently constructing host-rotaxanes with an "on" switch to obtain cell-selectivity. Highly charged peptides will be added to the transporters, which should make them impermeable. Enzymic cleavage of these peptides will turn the transporter on and it will enter cells. The long-term goal is to create transporters that are turned on by enzymes that are over expressed at tumor sites. These transporters will become part of a new anti-cancer therapy.

L2 ANSWER 2 OF 12 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2008:212584 CAPLUS
DOCUMENT NUMBER: 148:362966
TITLE: Mesoporous silicate materials as substrates for molecular machines and drug delivery
AUTHOR(S): Angelos, Sarah; Liong, Monty; Choi, Eunshil; Zink, Jeffrey I.
CORPORATE SOURCE: Department of Chemistry and Biochemistry, California NanoSystems Institute, University of California, Los Angeles, CA, 90095, USA
SOURCE: Chemical Engineering Journal (Amsterdam, Netherlands) (2008), 137(1), 4-13
CODEN: CMEJAJ; ISSN: 1385-8947
PUBLISHER: Elsevier B.V.
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English

AB A review. Mesoporous silica thin films and nanoparticles prepared by surfactant-templated sol-gel techniques are versatile substrates that can be easily derivatized with active mols. to create functional materials. By exploiting the chemical and phys. differences that exist in different regions of the mesostructure, active mols. can be deliberately placed using one-pot techniques, or they can be tethered to the exposed surfaces post-synthetically. The methods available for functionalization have been used to design operational machines including nanoimpellers based on the dynamic photoisomerization of azobenzene, and nanovalves based on the switchable motion of supramol. rotaxanes and pseudorotaxanes. The ability of nanoimpellers and nanovalves to control the release of mols. from the pores of mesoporous silica materials is demonstrated using luminescence spectroscopy. These machines can be designed to operate under a range of external stimuli, including light, elec. (redox) or chemical (pH, competitive binding) energy, making them useful systems for a variety of controlled release applications. Mesoporous silica nanoparticles not functionalized with mol. machines are capable of delivering water-insol. anticancer drugs to cancer cells. Carefully designed nanoimpellers and nanovalves supported on mesoporous silica nanoparticles offer the ability to develop sophisticated drug delivery vehicles for a wide range of drug mols.

REFERENCE COUNT: 54 THERE ARE 54 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 3 OF 12 CAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2007:1314352 CAPLUS

DOCUMENT NUMBER: 148:85314

TITLE: In vitro assessment of a novel polyrotaxane-based drug delivery system integrated with a cell-penetrating peptide

AUTHOR(S): Moon, Cheol; Kwon, Young Min; Lee, Won Kyu; Park, Yoon Jeong; Yang, Victor C.

CORPORATE SOURCE: School of Chemical Engineering, Tianjin University, Tianjin, 300072, Peop. Rep. China

SOURCE: Journal of Controlled Release (2007), 124(1-2), 43-50 CODEN: JCREEC; ISSN: 0168-3659

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB In the development of anti-cancer drugs, it is important to yield selective cytotoxicity primarily against tumor tissues. To achieve this goal, the use of a polymer-drug conjugate appears to be appealing, simply because it can take the advantage of the so-called enhanced permeability and retention (EPR) effect due to vascular leak in tumors. Among various types of polymers, polyrotaxane (PR) is an interesting candidate and warrants further consideration. It is a self-assembled polymer made entirely of biocompatible components, by threading α-cyclodextrin (α-CD) mols. with the poly(ethylene glycol) (PEG) chain. The abundance in functional -OH groups on the CD residues renders PR the capability of carrying a large dose of small anti-tumor agents for delivery. Herein, we presented a novel PR-based delivery system using doxorubicin (DOX) as the model anti-cancer drug. Daunorubicin (DNR) was conjugated to the PR polymer via hydrolysable linkages, and upon hydrolysis, doxorubicin was released as the cytotoxic drug. To facilitate an intracellular uptake by the tumor cells of the PR-DOX conjugates, a cell-penetrating low mol. weight protamine (LMWP) peptide was further attached to the two termini of the PR chain. Using an innovative principle established in our laboratory, such as via the inhibition of the cell-penetrating activity by binding with heparin and reversal of this inhibition by subsequent addition of protamine, cellular uptake of the polymer-drug conjugates could be readily regulated.

In this paper, we performed in vitro studies to demonstrate the feasibility of this delivery system. The LMWP-PR-DOX conjugates, which yielded a sustained release of DOX over a period of greater than 4 days, were successfully synthesized. Intracellular uptake of these conjugates by A2780 human ovarian cancer cells and regulation of such uptake by heparin and protamine were confirmed by using the MTT assay and also the confocal microscopy method.

REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 4 OF 12 CAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2007:1225501 CAPLUS
DOCUMENT NUMBER: 149:143181
TITLE: Multivalent Interactions between Lectins and Supramolecular Complexes: Galectin-1 and Self-Assembled Pseudopolyrotaxanes
AUTHOR(S): Belitsky, Jason M.; Nelson, Alshakim; Hernandez, Joseph D.; Baum, Linda G.; Stoddart, J. Fraser
CORPORATE SOURCE: California NanoSystems Institute and Department of Chemistry and Biochemistry, University of California, Los Angeles, CA, 90095, USA
SOURCE: Chemistry & Biology (Cambridge, MA, United States) (2007), 14(10), 1140-1151
CODEN: CBOLE2; ISSN: 1074-5521
PUBLISHER: Cell Press
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Supramol. chemical has been employed to develop flexible and adaptable multivalent neoglycoconjugates for binding galectin-1 (Gal-1). Gal-1, a dimeric lectin with two galactoside-binding sites, regulates cancer progression and immune responses. Self-assembled pseudopolyrotaxanes consisting of lactoside-displaying cyclodextrin (LCD) "beads" threaded onto polyviologen "strings" display mobile ligands as a result of cyclodextrin rotation about, and limited translation along, the polymer chain. The pseudopolyrotaxanes rapidly and efficiently precipitate Gal-1 and provide valency-corrected enhancements of up to 30-fold compared to native lactose and 20-fold over free LCD in a T-cell agglutination assay. A supramol. statistical effect was observed, wherein the efficacy of Gal-1 inhibition correlates with the number of ligands connected to each other solely through mech. and noncovalent interactions. Such flexible and adaptable self-assembled pseudopolyrotaxanes show promise for the study of multivalent interactions and targeting of therapeutically relevant lectins.

REFERENCE COUNT: 58 THERE ARE 58 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 5 OF 12 CAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2007:362480 CAPLUS
DOCUMENT NUMBER: 148:356023
TITLE: Targeting galectin-1 with self-assembled multivalent pseudopolyrotaxanes
AUTHOR(S): Belitsky, Jason M.; Stoddart, J. Fraser
CORPORATE SOURCE: California NanoSystems Institute and Department of Chemistry and Biochemistry, University of California, Los Angeles, CA, 90095, USA
SOURCE: ACS Symposium Series (2007), 960(Frontiers in Modern Carbohydrate Chemistry), 356-374
CODEN: ACSMC8; ISSN: 0097-6156
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English

AB This review describes the development of self-assembled multivalent pseudopolyrotaxanes as flexible and dynamic neoglycoconjugates for binding Galectin-1 (Gal-1). Gal-1, a dimeric lectin with two lactoside-binding sites, plays multiple roles in a variety of cancers. Pseudopolyrotaxanes comprised of lactoside-displaying cyclodextrin (LCD) "beads" threaded onto polyviologen "strings" display highly flexible and adaptable ligands as a result of rotation of the cyclodextrin torus about, and limited translation along, the polymer chain. The pseudopolyrotaxanes rapidly and efficiently precipitate Gal-1 and provide valency-corrected enhancements of up to 30-fold over native lactose and 20-fold over free LCD in a T-cell agglutination assay. These results show that the flexible and dynamic ligand presentation afforded by supramol. assemblies, such as the pseudopolyrotaxanes, is a useful strategy for the study of protein-carbohydrate interactions and the exploitation of multivalency for targeting therapeutically relevant lectins.

REFERENCE COUNT: 82 THERE ARE 82 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 6 OF 12 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2007:214595 CAPLUS
DOCUMENT NUMBER: 146:266766
TITLE: Antitumor agents containing rotaxane compounds
INVENTOR(S): Ono, Nobufumi
PATENT ASSIGNEE(S): One Station K. K., Japan
SOURCE: Jpn. Tokkyo Koho, 10pp.
CODEN: JTXXFF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 3887008	B1	20070228	JP 2006-280802	20061014
JP 2008094796	A	20080424		
WO 2008044704	A1	20080417	WO 2007-JP69747	20071010

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW

RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

PRIORITY APPLN. INFO.: JP 2006-280802 A 20061014

AB The invention provides an antitumor agent containing [bis[2-(3,5-dimethylphenylcarbonyloxy)ethyl]ammonium trifluoromethanesulfonate]-[dibenzo-24-crown-8] rotaxane as an active component. Preferably, the rotaxane compound is dissolved in DMSO at ≥ 100 nM, and introduced in the cells by electroporation.

L2 ANSWER 7 OF 12 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2005:55015 CAPLUS
DOCUMENT NUMBER: 142:183317
TITLE: Compositions and methods for targeted drug delivery

INVENTOR(S): Smithrud, David B.
PATENT ASSIGNEE(S): University of Cincinnati, USA
SOURCE: PCT Int. Appl., 114 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005004795	A2	20050120	WO 2004-US18301	20040609
WO 2005004795	A3	20071101		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, AP, EA, EP, OA				
US 20070027075	A1	20070201	US 2005-560121	20051208

PRIORITY APPLN. INFO.: US 2003-477091P P 20030609
WO 2004-US18301 W 20040609

AB The present invention provides for methods and compns. for transporting agents and macromols. across biol. membranes. In one embodiment, the invention relates to a method for enhancing transport of a selected agent across a biol. membrane, wherein a biol. membrane is contacted with a composition containing a biol. active rotaxane capable of selectively transporting the selected agent. The host-rotaxane is effective to impart to the agent an amount of transport and/or rate of trans-membrane transport across a biol. membrane that is greater than the amount and/or rate of trans-membrane transport of the agent without the host-rotaxane.

L2 ANSWER 8 OF 12 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1999:401700 CAPLUS
DOCUMENT NUMBER: 131:56134
TITLE: Polyrotaxanes as contrast agents
INVENTOR(S): Platzek, Johannes; Schmitt-Willich, Heribert
PATENT ASSIGNEE(S): Schering A.-G., Germany
SOURCE: PCT Int. Appl., 70 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9930744	A1	19990624	WO 1998-EP7924	19981209
W: AL, AM, AU, AZ, BA, BB, BG, BR, BY, CA, CN, CU, CZ, EE, GE, GH, GM, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, RO, RU, SD, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
DE 19758118	A1	19990701	DE 1997-19758118	19971217
AU 9921587	A	19990705	AU 1999-21587	19981209

EP 1037671	A1	20000927	EP 1998-965773		19981209
EP 1037671	B1	20030205			
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI					
JP 2002508401	T	20020319	JP 2000-538722		19981209
AT 232111	T	20030215	AT 1998-965773		19981209
US 6113880	A	20000905	US 1998-213287		19981217
PRIORITY APPLN. INFO.:			DE 1997-19758118	A	19971217
			US 1998-70703P	P	19980107
			WO 1998-EP7924	W	19981209

AB Polyrotaxanes which comprise 2-50 cyclic oligosaccharides threaded onto a linear polyoxyalkylene terminated with substituents ≥0.6 nm in diameter, with metal complexes or triiodobenzoyl moieties as substituents on the cyclic oligosaccharides, are useful as contrast agents for MR tomog. and x-ray diagnosis. These compds., with a mol. weight of 104-2 + 105, accumulate in regions of elevated vascular permeability (e.g. tumors), give information on perfusion of tissues and on blood volume, and are useful in angiog., lymphog., and diagnosis of inflammation. These polyrotaxanes, when used in MR imaging and diagnosis, can be 10-20% saturated with paramagnetic cations, compared to 5% for dextran chelate derivs. used previously. They can be administered parenterally in doses <1 mg/kg as solns. isoosmolar to blood, are relatively nontoxic, and are completely eliminated from the body. They are prepared by reaction of cyclic oligosaccharides with H-terminated polyoxyalkylenes in a polar solvent, followed by functionalized terminating groups.

REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 9 OF 12 MEDLINE on STN

ACCESSION NUMBER: 2007697769 MEDLINE
DOCUMENT NUMBER: PubMed ID: 17607767
TITLE: A novel polyrotaxane-based intracellular delivery system for camptothecin: in vitro feasibility evaluation.
AUTHOR: Moon Cheol; Kwon Young Min; Lee Won Kyu; Park Yoon Jeong; Chang Li-Chien; Yang Victor C
CORPORATE SOURCE: School of Chemical Engineering, Tianjin University, Tianjin 300072, China.
CONTRACT NUMBER: R01 CA114612 (United States NCI)
R01 HL55461 (United States NHLBI)
SOURCE: Journal of biomedical materials research. Part A, (2008 Jan) Vol. 84, No. 1, pp. 238-46.
Journal code: 101234237. ISSN: 1549-3296.
PUB. COUNTRY: United States
DOCUMENT TYPE: (EVALUATION STUDIES)
Journal; Article; (JOURNAL ARTICLE)
(RESEARCH SUPPORT, N.I.H., EXTRAMURAL)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200802
ENTRY DATE: Entered STN: 27 Nov 2007
Last Updated on STN: 9 Feb 2008
Entered Medline: 8 Feb 2008

AB Camptothecin (CPT) is a naturally occurring alkaloid that shows promise in antitumor activity in vitro against various tumor cell lines. Its potential clinical uses, however, are hindered by a lack of reaction selectivity and poor water solubility. Presented herein is a novel polyrotaxane (PR)-based delivery system that could potentially lead to a highly effective yet less toxic CPT therapy. The approach involves the synthesis of the PR-CPT conjugates via hydrolyzable linkages. To enhance the therapeutic efficacy of CPT, a cell-penetrating peptide, LMWP, is linked to the conjugate to allow specific, intratumoral delivery of CPT. To avoid nonselective uptake of the conjugates by normal tissues following

administration, the cell-penetrating function of LMWP on the conjugates is masked by heparin binding. This system was designed such that after accumulation at the tumor via the enhanced permeability and retention (EPR) effect, protamine can be subsequently administered to unmask heparin inhibition on LMWP, permitting intracellular uptake of the LMWP-PR-CPT conjugates. Once inside the tumor, CPT molecules are detached from the PR chain by hydrolysis, yielding a sustained concentration of CPT within tumor cells. In this paper, we demonstrated the in vitro feasibility of this delivery system. The LMWP-PR-CPT conjugates yielded a sevenfold increase in the overall CPT solubility, as well as a sustained release of CPT over a period of more than 7 days. Intracellular uptake of these conjugates by A2780 human ovarian cancer cells and regulation of such uptake by heparin and protamine were tested by MTT assay and confocal/flow cytometric methods, respectively.

L2 ANSWER 10 OF 12 MEDLINE on STN
ACCESSION NUMBER: 2007683816 MEDLINE
DOCUMENT NUMBER: PubMed ID: 17904680
TITLE: In vitro assessment of a novel polyrotaxane-based drug delivery system integrated with a cell-penetrating peptide.
AUTHOR: Moon Cheol; Kwon Young Min; Lee Won Kyu; Park Yoon Jeong; Yang Victor C
CORPORATE SOURCE: School of Chemical Engineering, Tianjin University, Tianjin 300072, China.
CONTRACT NUMBER: R01 CA114612 (United States NCI)
R01 HL55461 (United States NHLBI)
SOURCE: Journal of controlled release : official journal of the Controlled Release Society, (2007 Dec 4) Vol. 124, No. 1-2, pp. 43-50. Electronic Publication: 2007-09-05.
Journal code: 8607908. E-ISSN: 1873-4995.
PUB. COUNTRY: Netherlands
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
(RESEARCH SUPPORT, N.I.H., EXTRAMURAL)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200801
ENTRY DATE: Entered STN: 21 Nov 2007
Last Updated on STN: 23 Jan 2008
Entered Medline: 22 Jan 2008

AB In the development of anti-cancer drugs, it is important to yield selective cytotoxicity primarily against tumor tissues. To achieve this goal, the use of a polymer-drug conjugate appears to be appealing, simply because it can take the advantage of the so-called enhanced permeability and retention (EPR) effect due to vascular leak in tumors. Among various types of polymers, polyrotaxane (PR) is an interesting candidate and warrants further consideration. It is a self-assembled polymer made entirely of biocompatible components, by threading alpha-cyclodextrin (alpha-CD) molecules with the poly(ethylene glycol) (PEG) chain. The abundance in functional -OH groups on the CD residues renders PR the capability of carrying a large dose of small anti-tumor agents for delivery. Herein, we presented a novel PR-based delivery system using doxorubicin (DOX) as the model anti-cancer drug. Daunorubicin (DNR) was conjugated to the PR polymer via hydrolysable linkages, and upon hydrolysis, doxorubicin was released as the cytotoxic drug. To facilitate an intracellular uptake by the tumor cells of the PR-DOX conjugates, a cell-penetrating low molecular weight protamine (LMWP) peptide was further attached to the two termini of the PR chain. Using an innovative principle established in our laboratory, such as via the inhibition of the cell-penetrating activity by binding with heparin and reversal of this inhibition by subsequent

addition of protamine, cellular uptake of the polymer-drug conjugates could be readily regulated. In this paper, we performed in vitro studies to demonstrate the feasibility of this delivery system. The LMWP-PR-DOX conjugates, which yielded a sustained release of DOX over a period of greater than 4 days, were successfully synthesized. Intracellular uptake of these conjugates by A2780 human ovarian cancer cells and regulation of such uptake by heparin and protamine were confirmed by using the MTT assay and also the confocal microscopy method.

L2 ANSWER 11 OF 12 MEDLINE on STN
ACCESSION NUMBER: 2007637107 MEDLINE
DOCUMENT NUMBER: PubMed ID: 17961826
TITLE: Multivalent interactions between lectins and supramolecular complexes: Galectin-1 and self-assembled pseudopolyrotaxanes.
AUTHOR: Belitsky Jason M; Nelson Alshakim; Hernandez Joseph D; Baum Linda G; Stoddart J Fraser
CORPORATE SOURCE: California NanoSystems Institute, Department of Chemistry and Biochemistry, University of California, Los Angeles, Los Angeles, CA 90095, USA.
CONTRACT NUMBER: GM63281 (United States NIGMS)
R01 GM063281-04A1 (United States NIGMS)
SOURCE: Chemistry & biology, (2007 Oct) Vol. 14, No. 10, pp. 1140-51.
Journal code: 9500160. ISSN: 1074-5521.
PUB. COUNTRY: England: United Kingdom
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
(RESEARCH SUPPORT, N.I.H., EXTRAMURAL)
(RESEARCH SUPPORT, U.S. GOV'T, NON-P.H.S.)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200801
ENTRY DATE: Entered STN: 27 Oct 2007
Last Updated on STN: 29 Jan 2008
Entered Medline: 24 Jan 2008
AB Supramolecular chemistry has been employed to develop flexible and adaptable multivalent neoglycoconjugates for binding galectin-1 (Gal-1). Gal-1, a dimeric lectin with two galactoside-binding sites, regulates cancer progression and immune responses. Self-assembled pseudopolyrotaxanes consisting of lactoside-displaying cyclodextrin (LCD) "beads" threaded onto polyviologen "strings" display mobile ligands as a result of cyclodextrin rotation about, and limited translation along, the polymer chain. The pseudopolyrotaxanes rapidly and efficiently precipitate Gal-1 and provide valency-corrected enhancements of up to 30-fold compared to native lactose and 20-fold over free LCD in a T-cell agglutination assay. A supramolecular statistical effect was observed, wherein the efficacy of Gal-1 inhibition correlates with the number of ligands connected to each other solely through mechanical and noncovalent interactions. Such flexible and adaptable self-assembled pseudopolyrotaxanes show promise for the study of multivalent interactions and targeting of therapeutically relevant lectins.

L2 ANSWER 12 OF 12 MEDLINE on STN
ACCESSION NUMBER: 2004472635 MEDLINE
DOCUMENT NUMBER: PubMed ID: 15382926
TITLE: A self-assembled multivalent pseudopolyrotaxane for binding galectin-1.
AUTHOR: Nelson Alshakim; Belitsky Jason M; Vidal Sebastien; Joiner C Steven; Baum Linda G; Stoddart J Fraser
CORPORATE SOURCE: California NanoSystems Institute, Department of Chemistry and Biochemistry, University of California, Los Angeles, California 90095, USA.

CONTRACT NUMBER: R01 GM63281 (United States NIGMS)
SOURCE: Journal of the American Chemical Society, (2004 Sep 29)
Vol. 126, No. 38, pp. 11914-22.
Journal code: 7503056. ISSN: 0002-7863.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
(RESEARCH SUPPORT, U.S. GOV'T, NON-P.H.S.)
(RESEARCH SUPPORT, U.S. GOV'T, P.H.S.)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200505
ENTRY DATE: Entered STN: 23 Sep 2004
Last Updated on STN: 3 May 2005
Entered Medline: 2 May 2005

AB A self-assembled pseudopolyrotaxane consisting of lactoside-displaying cyclodextrin (CD) "beads" threaded onto a linear polyviologen "string" was investigated for its ability to inhibit galectin-1-mediated T-cell agglutination. The CDs of the pseudopolyrotaxane are able to spin around the axis of the polymer chain as well as to move back and forth along its backbone to alter the presentation of its ligand. This supramolecular superstructure incorporates all the advantages of polymeric structures, such as the ability to span large distances, along with a distinctively dynamic presentation of its lactoside ligands to afford a neoglycoconjugate that can adjust to the relative stereochemistries of the lectin's binding sites. The pseudopolyrotaxane exhibited a valency-corrected 10-fold enhancement over native lactose in the agglutination assay, which was greater than the enhancements observed for lactoside-bearing trivalent glycoclusters and a lactoside-bearing chitosan polymer tested using the same assay. The experimental results indicate that supramolecular architectures, such as the pseudopolyrotaxane, provide tools for investigating protein-carbohydrate interactions.

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NEWS 5	JUL 28	STN Viewer performance improved
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NEWS 7	AUG 13	CA/CAplus enhanced with printed Chemical Abstracts page images from 1967-1998
NEWS 8	AUG 15	CAOLD to be discontinued on December 31, 2008
NEWS 9	AUG 15	CAplus currency for Korean patents enhanced
NEWS 10	AUG 27	CAS definition of basic patents expanded to ensure comprehensive access to substance and sequence

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                  to be discontinued
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                  to accommodate supplemental CAS indexing of
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                  and Korean patents enhanced
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                  prophetic substances identified in new Japanese-
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 NEWS 17  OCT 07  EPFULL enhanced with full implementation of EPC2000
 NEWS 18  OCT 07  Multiple databases enhanced for more flexible patent
                  number searching
 NEWS 19  OCT 22  Current-awareness alert (SDI) setup and editing
                  enhanced
 NEWS 20  OCT 22  WPIDS, WPINDEX, and WPIX enhanced with Canadian PCT
                  Applications
 NEWS 21  OCT 24  CHEMLIST enhanced with intermediate list of
                  pre-registered REACH substances
 NEWS 22  NOV 21  CAS patent coverage to include exemplified prophetic
                  substances identified in English-, French-, German-,
                  and Japanese-language basic patents from 2004-present
 NEWS 23  NOV 26  MARPAT enhanced with FSORT command
 NEWS 24  NOV 26  MEDLINE year-end processing temporarily halts
                  availability of new fully-indexed citations
 NEWS 25  NOV 26  CHEMSAFE now available on STN Easy
 NEWS 26  NOV 26  Two new SET commands increase convenience of STN
                  searching
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              AND CURRENT DISCOVER FILE IS DATED 23 JUNE 2008.

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=> s ?rotaxane and (cancer or tumor or tumour or neoplasm)
L1          19 ?ROTAXANE AND (CANCER OR TUMOR OR TUMOUR OR NEOPLASM)

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L2           15 DUP REM L1 (4 DUPLICATES REMOVED)

=> d l2 ibib abs 1-15

L2   ANSWER 1 OF 15  CAPLUS  COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER:        2008:390632  CAPLUS
TITLE:                   Host-rotaxane as cellular transport agents
                         with an enzymatic switch
AUTHOR(S):               Lunn, Jennifer H.; Smithrud, David B.
CORPORATE SOURCE:        Department of Chemistry, University of Cincinnati,
                         Cincinnati, OH, 45221, USA
SOURCE:                  Abstracts of Papers, 235th ACS National Meeting, New
                         Orleans, LA, United States, April 6-10, 2008 (2008),
                         ORGN-611.  American Chemical Society: Washington, D.
                         C.
                         CODEN: 69KNN3
DOCUMENT TYPE:           Conference; Meeting Abstract; (computer optical disk)
LANGUAGE:                English
AB   The binding domain of an antibody is a paradigm for the development of a
     synthetic host.  Host-rotaxanes combine recognition elements in a similar
     convergent arrangement as found with antibodies.  Besides forming tight
     complexes with various guests, host-rotaxanes are highly efficient
     cellular transport agents.  The rotaxane operates through a
     passive transport mechanism, so there is no control over what cell it
     enters.  We are currently constructing host-rotaxanes with an "on" switch
     to obtain cell-selectivity.  Highly charged peptides will be added to the
     transporters, which should make them impermeable.  Enzymic cleavage of
     these peptides will turn the transporter on and it will enter cells.  The
     long-term goal is to create transporters that are turned on by enzymes
     that are over expressed at tumor sites.  These transporters will
     become part of a new anti-cancer therapy.

L2   ANSWER 2 OF 15     MEDLINE on STN
ACCESSION NUMBER:   2007697769     MEDLINE
DOCUMENT NUMBER:    PubMed ID: 17607767
TITLE:              A novel polyrotaxane-based intracellular delivery
                    system for camptothecin: in vitro feasibility evaluation.
AUTHOR:             Moon Cheol; Kwon Young Min; Lee Won Kyu; Park Yoon Jeong;
                    Chang Li-Chien; Yang Victor C
CORPORATE SOURCE:   School of Chemical Engineering, Tianjin University, Tianjin
                    300072, China.
CONTRACT NUMBER:    R01 CA114612 (United States NCI)
                    R01 HL55461 (United States NHLBI)
SOURCE:             Journal of biomedical materials research. Part A, (2008
                    Jan) Vol. 84, No. 1, pp. 238-46.
                    Journal code: 101234237. ISSN: 1549-3296.
PUB. COUNTRY:       United States
```

DOCUMENT TYPE: (EVALUATION STUDIES)
Journal; Article; (JOURNAL ARTICLE)
(RESEARCH SUPPORT, N.I.H., EXTRAMURAL)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200802
ENTRY DATE: Entered STN: 27 Nov 2007
Last Updated on STN: 9 Feb 2008
Entered Medline: 8 Feb 2008

AB Camptothecin (CPT) is a naturally occurring alkaloid that shows promise in antitumor activity in vitro against various tumor cell lines. Its potential clinical uses, however, are hindered by a lack of reaction selectivity and poor water solubility. Presented herein is a novel polyrotaxane (PR)-based delivery system that could potentially lead to a highly effective yet less toxic CPT therapy. The approach involves the synthesis of the PR-CPT conjugates via hydrolyzable linkages. To enhance the therapeutic efficacy of CPT, a cell-penetrating peptide, LMWP, is linked to the conjugate to allow specific, intratumoral delivery of CPT. To avoid nonselective uptake of the conjugates by normal tissues following administration, the cell-penetrating function of LMWP on the conjugates is masked by heparin binding. This system was designed such that after accumulation at the tumor via the enhanced permeability and retention (EPR) effect, protamine can be subsequently administered to unmask heparin inhibition on LMWP, permitting intracellular uptake of the LMWP-PR-CPT conjugates. Once inside the tumor, CPT molecules are detached from the PR chain by hydrolysis, yielding a sustained concentration of CPT within tumor cells. In this paper, we demonstrated the in vitro feasibility of this delivery system. The LMWP-PR-CPT conjugates yielded a sevenfold increase in the overall CPT solubility, as well as a sustained release of CPT over a period of more than 7 days. Intracellular uptake of these conjugates by A2780 human ovarian cancer cells and regulation of such uptake by heparin and protamine were tested by MTT assay and confocal/flow cytometric methods, respectively.

L2 ANSWER 3 OF 15 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2007:1377916 CAPLUS
DOCUMENT NUMBER: 148:433597
TITLE: A low molecular weight protamine (LMWP)-mediated, polyrotaxane-based intracellular delivery system for anti-tumor agents
AUTHOR(S): Moon, Cheol
CORPORATE SOURCE: Univ. of Michigan, Ann Arbor, MI, USA
SOURCE: (2007) 91 pp. Avail.: UMI, Order No. DA3253359
From: Diss. Abstr. Int., B 2007, 68(2), 911
DOCUMENT TYPE: Dissertation
LANGUAGE: English
AB Unavailable

L2 ANSWER 4 OF 15 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2007:214595 CAPLUS
DOCUMENT NUMBER: 146:266766
TITLE: Antitumor agents containing rotaxane compounds
INVENTOR(S): Ono, Nobufumi
PATENT ASSIGNEE(S): One Station K. K., Japan
SOURCE: Jpn. Tokkyo Koho, 10pp.
CODEN: JTXXFF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 3887008	B1	20070228	JP 2006-280802	20061014
JP 2008094796	A	20080424		
WO 2008044704	A1	20080417	WO 2007-JP69747	20071010

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW

RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

PRIORITY APPLN. INFO.: JP 2006-280802 A 20061014

AB The invention provides an antitumor agent containing [bis[2-(3,5-dimethylphenylcarbonyloxy)ethyl]ammonium trifluoromethanesulfonate]-[dibenzo-24-crown-8] rotaxane as an active component. Preferably, the rotaxane compound is dissolved in DMSO at ≥ 100 nM, and introduced in the cells by electroporation.

L2 ANSWER 5 OF 15 CAPLUS COPYRIGHT 2008 ACS on STN DUPLICATE 1

ACCESSION NUMBER: 2007:1225501 CAPLUS
DOCUMENT NUMBER: 149:143181
TITLE: Multivalent Interactions between Lectins and Supramolecular Complexes: Galectin-1 and Self-Assembled Pseudopolyrotaxanes
AUTHOR(S): Belitsky, Jason M.; Nelson, Alshakim; Hernandez, Joseph D.; Baum, Linda G.; Stoddart, J. Fraser
CORPORATE SOURCE: California NanoSystems Institute and Department of Chemistry and Biochemistry, University of California, Los Angeles, CA, 90095, USA
SOURCE: Chemistry & Biology (Cambridge, MA, United States) (2007), 14(10), 1140-1151
CODEN: CBOLE2; ISSN: 1074-5521
PUBLISHER: Cell Press
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Supramol. chemical has been employed to develop flexible and adaptable multivalent neoglycoconjugates for binding galectin-1 (Gal-1). Gal-1, a dimeric lectin with two galactoside-binding sites, regulates cancer progression and immune responses. Self-assembled pseudopolyrotaxanes consisting of lactoside-displaying cyclodextrin (LCD) "beads" threaded onto polyviologen "strings" display mobile ligands as a result of cyclodextrin rotation about, and limited translation along, the polymer chain. The pseudopolyrotaxanes rapidly and efficiently precipitate Gal-1 and provide valency-corrected enhancements of up to 30-fold compared to native lactose and 20-fold over free LCD in a T-cell agglutination assay. A supramol. statistical effect was observed, wherein the efficacy of Gal-1 inhibition correlates with the number of ligands connected to each other solely through mech. and noncovalent interactions. Such flexible and adaptable self-assembled pseudopolyrotaxanes show promise for the study of multivalent interactions and targeting of therapeutically relevant lectins.

REFERENCE COUNT: 58 THERE ARE 58 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 6 OF 15 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2007:362480 CAPLUS
DOCUMENT NUMBER: 148:356023
TITLE: Targeting galectin-1 with self-assembled multivalent pseudopolyrotaxanes
AUTHOR(S): Belitsky, Jason M.; Stoddart, J. Fraser
CORPORATE SOURCE: California NanoSystems Institute and Department of Chemistry and Biochemistry, University of California, Los Angeles, CA, 90095, USA
SOURCE: ACS Symposium Series (2007), 960(Frontiers in Modern Carbohydrate Chemistry), 356-374
CODEN: ACSMC8; ISSN: 0097-6156
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English
AB This review describes the development of self-assembled multivalent pseudopolyrotaxanes as flexible and dynamic neoglycoconjugates for binding Galectin-1 (Gal-1). Gal-1, a dimeric lectin with two lactoside-binding sites, plays multiple roles in a variety of cancers. Pseudopolyrotaxanes comprised of lactoside-displaying cyclodextrin (LCD) "beads" threaded onto polyviologen "strings" display highly flexible and adaptable ligands as a result of rotation of the cyclodextrin torus about, and limited translation along, the polymer chain. The pseudopolyrotaxanes rapidly and efficiently precipitate Gal-1 and provide valency-corrected enhancements of up to 30-fold over native lactose and 20-fold over free LCD in a T-cell agglutination assay. These results show that the flexible and dynamic ligand presentation afforded by supramol. assemblies, such as the pseudopolyrotaxanes, is a useful strategy for the study of protein-carbohydrate interactions and the exploitation of multivalency for targeting therapeutically relevant lectins.
REFERENCE COUNT: 82 THERE ARE 82 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 7 OF 15 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2007:1445181 CAPLUS
DOCUMENT NUMBER: 148:246123
TITLE: A novel polyrotaxane-based intracellular delivery system for camptothecin: in vitro feasibility evaluation
AUTHOR(S): Moon, Cheol; Kwon, Young Min; Lee, Won Kyu; Park, Yoon Jeong; Chang, Li-Chien; Yang, Victor C.
CORPORATE SOURCE: School of Chemical Engineering, Tianjin University, Tianjin, 300072, Peop. Rep. China
SOURCE: Journal of Biomedical Materials Research, Part A (2007), Volume Date 2008, 84A(1), 238-246
CODEN: JBMRCH; ISSN: 1549-3296
PUBLISHER: John Wiley & Sons, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Camptothecin (CPT) is a naturally occurring alkaloid that shows promise in antitumor activity in vitro against various tumor cell lines. Its potential clin. uses, however, are hindered by a lack of reaction selectivity and poor water solubility Presented herein is a novel polyrotaxane (PR)-based delivery system that could potentially lead to a highly effective yet less toxic CPT therapy. The approach involves the synthesis of the PR-CPT conjugates via hydrolyzable linkages. To enhance the therapeutic efficacy of CPT, a cell-penetrating peptide, LMWP, is linked to the conjugate to allow specific, intratumoral delivery of CPT. To avoid nonselective uptake of the conjugates by normal tissues

following administration, the cell-penetrating function of LMWP on the conjugates is masked by heparin binding. This system was designed such that after accumulation at the tumor via the enhanced permeability and retention (EPR) effect, protamine can be subsequently administered to unmask heparin inhibition on LMWP, permitting intracellular uptake of the LMWP-PR-CPT conjugates. Once inside the tumor, CPT mols. are detached from the PR chain by hydrolysis, yielding a sustained concentration of CPT within tumor cells. In this paper, we demonstrated the in vitro feasibility of this delivery system. The LMWP-PR-CPT conjugates yielded a sevenfold increase in the overall CPT solubility, as well as a sustained release of CPT over a period of more than 7 days. Intracellular uptake of these conjugates by A2780 human ovarian cancer cells and regulation of such uptake by heparin and protamine were tested by MTT assay and confocal/flow cytometric methods, resp.

REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 8 OF 15 CAPLUS COPYRIGHT 2008 ACS on STN DUPLICATE 2

ACCESSION NUMBER: 2007:1314352 CAPLUS

DOCUMENT NUMBER: 148:85314

TITLE: In vitro assessment of a novel polyrotaxane -based drug delivery system integrated with a cell-penetrating peptide

AUTHOR(S): Moon, Cheol; Kwon, Young Min; Lee, Won Kyu; Park, Yoon Jeong; Yang, Victor C.

CORPORATE SOURCE: School of Chemical Engineering, Tianjin University, Tianjin, 300072, Peop. Rep. China

SOURCE: Journal of Controlled Release (2007), 124(1-2), 43-50 CODEN: JCREEC; ISSN: 0168-3659

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB In the development of anti-cancer drugs, it is important to yield selective cytotoxicity primarily against tumor tissues. To achieve this goal, the use of a polymer-drug conjugate appears to be appealing, simply because it can take the advantage of the so-called enhanced permeability and retention (EPR) effect due to vascular leak in tumors. Among various types of polymers, polyrotaxane (PR) is an interesting candidate and warrants further consideration. It is a self-assembled polymer made entirely of biocompatible components, by threading α-cyclodextrin (α-CD) mols. with the poly(ethylene glycol) (PEG) chain. The abundance in functional -OH groups on the CD residues renders PR the capability of carrying a large dose of small anti-tumor agents for delivery. Herein, we presented a novel PR-based delivery system using doxorubicin (DOX) as the model anti-cancer drug. Daunorubicin (DNR) was conjugated to the PR polymer via hydrolysable linkages, and upon hydrolysis, doxorubicin was released as the cytotoxic drug. To facilitate an intracellular uptake by the tumor cells of the PR-DOX conjugates, a cell-penetrating low mol. weight protamine (LMWP) peptide was further attached to the two termini of the PR chain. Using an innovative principle established in our laboratory, such as via the inhibition of the cell-penetrating activity by binding with heparin and reversal of this inhibition by subsequent addition of protamine, cellular uptake of the polymer-drug conjugates could be readily regulated. In this paper, we performed in vitro studies to demonstrate the feasibility of this delivery system. The LMWP-PR-DOX conjugates, which yielded a sustained release of DOX over a period of greater than 4 days, were successfully synthesized. Intracellular uptake of these conjugates by A2780 human ovarian cancer cells and regulation of such uptake by heparin and protamine were confirmed by using the MTT assay and

also the confocal microscopy method.
REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 9 OF 15 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2005:55015 CAPLUS
DOCUMENT NUMBER: 142:183317
TITLE: Compositions and methods for targeted drug delivery
INVENTOR(S): Smithrud, David B.
PATENT ASSIGNEE(S): University of Cincinnati, USA
SOURCE: PCT Int. Appl., 114 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005004795	A2	20050120	WO 2004-US18301	20040609
WO 2005004795	A3	20071101		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, AP, EA, EP, OA				
US 20070027075	A1	20070201	US 2005-560121	20051208
PRIORITY APPLN. INFO.:			US 2003-477091P P	20030609
			WO 2004-US18301 W	20040609

AB The present invention provides for methods and compns. for transporting agents and macromols. across biol. membranes. In one embodiment, the invention relates to a method for enhancing transport of a selected agent across a biol. membrane, wherein a biol. membrane is contacted with a composition containing a biol. active rotaxane capable of selectively transporting the selected agent. The host-rotaxane is effective to impart to the agent an amount of transport and/or rate of trans-membrane transport across a biol. membrane that is greater than the amount and/or rate of trans-membrane transport of the agent without the host-rotaxane.

L2 ANSWER 10 OF 15 MEDLINE on STN
ACCESSION NUMBER: 2004472635 MEDLINE
DOCUMENT NUMBER: PubMed ID: 15382926
TITLE: A self-assembled multivalent pseudopolyrotaxane for binding galectin-1.
AUTHOR: Nelson Alshakim; Belitsky Jason M; Vidal Sebastien; Joiner C Steven; Baum Linda G; Stoddart J Fraser
CORPORATE SOURCE: California NanoSystems Institute, Department of Chemistry and Biochemistry, University of California, Los Angeles, California 90095, USA.
CONTRACT NUMBER: R01 GM63281 (United States NIGMS)
SOURCE: Journal of the American Chemical Society, (2004 Sep 29) Vol. 126, No. 38, pp. 11914-22.
Journal code: 7503056. ISSN: 0002-7863.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)

(RESEARCH SUPPORT, U.S. GOV'T, NON-P.H.S.)
(RESEARCH SUPPORT, U.S. GOV'T, P.H.S.)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200505
ENTRY DATE: Entered STN: 23 Sep 2004
Last Updated on STN: 3 May 2005
Entered Medline: 2 May 2005

AB A self-assembled pseudopolyrotaxane consisting of lactoside-displaying cyclodextrin (CD) "beads" threaded onto a linear polyviologen "string" was investigated for its ability to inhibit galectin-1-mediated T-cell agglutination. The CDs of the pseudopolyrotaxane are able to spin around the axis of the polymer chain as well as to move back and forth along its backbone to alter the presentation of its ligand. This supramolecular superstructure incorporates all the advantages of polymeric structures, such as the ability to span large distances, along with a distinctively dynamic presentation of its lactoside ligands to afford a neoglycoconjugate that can adjust to the relative stereochemistries of the lectin's binding sites. The pseudopolyrotaxane exhibited a valency-corrected 10-fold enhancement over native lactose in the agglutination assay, which was greater than the enhancements observed for lactoside-bearing trivalent glycoclusters and a lactoside-bearing chitosan polymer tested using the same assay. The experimental results indicate that supramolecular architectures, such as the pseudopolyrotaxane, provide tools for investigating protein-carbohydrate interactions.

L2 ANSWER 11 OF 15 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1999:401700 CAPLUS
DOCUMENT NUMBER: 131:56134
TITLE: Polyrotaxanes as contrast agents
INVENTOR(S): Platzek, Johannes; Schmitt-Willich, Heribert
PATENT ASSIGNEE(S): Schering A.-G., Germany
SOURCE: PCT Int. Appl., 70 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9930744	A1	19990624	WO 1998-EP7924	19981209
W: AL, AM, AU, AZ, BA, BB, BG, BR, BY, CA, CN, CU, CZ, EE, GE, GH, GM, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, RO, RU, SD, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
DE 19758118	A1	19990701	DE 1997-19758118	19971217
AU 9921587	A	19990705	AU 1999-21587	19981209
EP 1037671	A1	20000927	EP 1998-965773	19981209
EP 1037671	B1	20030205		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
JP 2002508401	T	20020319	JP 2000-538722	19981209
AT 232111	T	20030215	AT 1998-965773	19981209
US 6113880	A	20000905	US 1998-213287	19981217

PRIORITY APPLN. INFO.:	DE 1997-19758118 A	19971217
	US 1998-70703P P	19980107
	WO 1998-EP7924 W	19981209

AB Polyrotaxanes which comprise 2-50 cyclic oligosaccharides threaded onto a

linear polyoxyalkylene terminated with substituents ≥0.6 nm in diameter, with metal complexes or triiodobenzoyl moieties as substituents on the cyclic oligosaccharides, are useful as contrast agents for MR tomog. and x-ray diagnosis. These compds., with a mol. weight of 104-2 + 105, accumulate in regions of elevated vascular permeability (e.g. tumors), give information on perfusion of tissues and on blood volume, and are useful in angiog., lymphog., and diagnosis of inflammation. These polyrotaxanes, when used in MR imaging and diagnosis, can be 10-20% saturated with paramagnetic cations, compared to 5% for dextran chelate derivs. used previously. They can be administered parenterally in doses <1 mg/kg as solns. isoosmolar to blood, are relatively nontoxic, and are completely eliminated from the body. They are prepared by reaction of cyclic oligosaccharides with H-terminated polyoxyalkylenes in a polar solvent, followed by functionalized terminating groups.

REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 12 OF 15 CAPLUS COPYRIGHT 2008 ACS on STN DUPLICATE 3

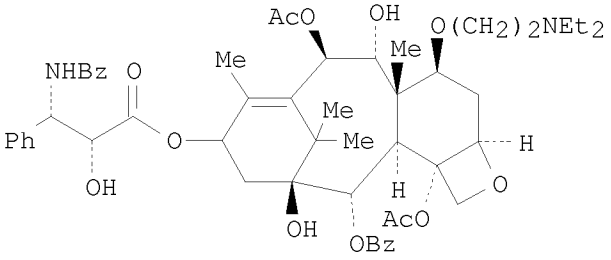
ACCESSION NUMBER: 1996:228308 CAPLUS
DOCUMENT NUMBER: 124:332014
ORIGINAL REFERENCE NO.: 124:61277a,61280a
TITLE: Preclinical in vivo efficacy of two 9-dihydrotaxane analogs against human and murine tumors
AUTHOR(S): Alder, J. D.; Jarvis, K. P.; Marsh, K. C.; Klein, L. L.; Clement, JJ
CORPORATE SOURCE: Department 47T, Abbott Laboratories, Abbott Park, IL, 60064-3500, USA
SOURCE: British Journal of Cancer (1996), 73(5), 560-4
CODEN: BJCAAI; ISSN: 0007-0920
PUBLISHER: Stockton
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Two 9-dihydrotaxane analogs were synthesized and tested for in vitro potency and in vivo efficacy against murine and human tumor xenografts in mice. The in vitro potency of 9-dihydrotaxol (9-DH-t) and 10-deacetyl-9-dihydrotaxol (10-DeAc-9-DH-t) was generally less than that of paclitaxel against human and murine tumor cells. However, both analogs were at least 20-fold more soluble than paclitaxel in water. The analogs yielded cure rates ≥ 60% against human MX-1 solid tumor xenografts in mice, compared with a cure rate of 10% for mice treated with paclitaxel. Both of the analogs were more effective than paclitaxel for treatment of murine M109 solid tumor in mice. 10-DeAc-9-DH-t was as effective as paclitaxel against murine B16 ascites tumor, while 9-DH-t was less effective. Both 10-DeAc-9-DH-t and 9-DH-t were demonstrably less toxic than paclitaxel. At equal dosages 9-DH-t produced serum concns. greater than paclitaxel, while 10-DeAc-9-DH-t yielded serum concns. less than paclitaxel. However, the decrease in toxicity of 9-DH-t and 10-DeAc-9-DH-t allowed a 4-fold increase in daily dosage. These two 9-dihydrotaxane analogs yielded favorable preclin. data and demonstrated good potential for further development.

L2 ANSWER 13 OF 15 CAPLUS COPYRIGHT 2008 ACS on STN DUPLICATE 4

ACCESSION NUMBER: 1995:508304 CAPLUS
DOCUMENT NUMBER: 123:83760
ORIGINAL REFERENCE NO.: 123:15005a,15008a
TITLE: Antitumor Activity of 9(R)-Dihydrotaxane Analogs
AUTHOR(S): Klein, Larry L.; Li, Leping; Maring, Clarence J.; Yeung, Clinton M.; Thomas, Sheela A.; Grampovnik, David J.; Plattner, Jacob J.

CORPORATE SOURCE: Abbott Laboratories, Abbott Park, IL, 60064-3500, USA
SOURCE: Journal of Medicinal Chemistry (1995), 38(9), 1482-92
CODEN: JMCMAR; ISSN: 0022-2623
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
GI



I

AB A novel reduced taxane, 13-acetyl-9(R)-dihydrobaccatin III has been isolated from Taxus canadensis. The selective C-13 deacetylation of this isolate has allowed for the preparation of a wide variety of 9(R)-dihydrotaxane analogs, e.g. I. In general, this series has shown greater stability and water solubility than the 9-carbonyl series while retaining antimicrotubule and tumor cell cytotoxicity activities relative to taxol. Placement of polar functionalities at the C-7 position results in loss of activity whereas alkylation or acylation of either C-7 or C-9 hydroxyl groups ameliorate the activity.

L2 ANSWER 14 OF 15 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1995:280270 CAPLUS
DOCUMENT NUMBER: 122:239969
ORIGINAL REFERENCE NO.: 122:43873a,43876a
TITLE: Chemistry and antitumor activity of 9(R)-dihydrotaxanes
AUTHOR(S): Klein, L. L.; Li, L.; Yeung, C. M.; Maring, C. J.; Thomas, S. A.; Grampovnik, D. J.; Plattner, J. J.
CORPORATE SOURCE: Anti-Infective Division, Abbott Lab., Abbott Park, IL, 60064-3500, USA
SOURCE: ACS Symposium Series (1995), 583(Taxane Anticancer Agents), 276-87
CODEN: ACSMC8; ISSN: 0097-6156
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English
AB Review with 19 refs. The 9(R)-dihydrotaxanes are a new family of semisynthetic antitumor agents which show great promise as a second generation class of antimicrotubule agents. These compds. have increased water solubility and stability as compared to taxol and also exhibit excellent activity in tumor models. Other advantages of the 9(R)-hydroxyl group can be found in its use as an addnl. site for chemical modification towards the preparation of new derivs. Furthermore, its effect on the surrounding functionalities allows for access to novel chemical and ring systems from this taxane template.

L2 ANSWER 15 OF 15 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1994:299016 CAPLUS
DOCUMENT NUMBER: 120:299016
ORIGINAL REFERENCE NO.: 120:52713a,52716a
TITLE: Synthesis of Ring B-Rearranged Taxane Analogs

AUTHOR(S): Klein, Larry L.; Maring, Clarence J.; Li, Leping; Yeung, Clinton M.; Thomas, Sheela A.; Grampovnik, David J.; Plattner, J. J.; Henry, Rodger F.
CORPORATE SOURCE: Anti-Infective Division, Abbott Laboratories, Abbott Park, IL, 60064, USA
SOURCE: Journal of Organic Chemistry (1994), 59(9), 2370-3
CODEN: JOCEAH; ISSN: 0022-3263
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 120:299016
GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB Reaction of the C-7 hydroxyl group on the 9-dihydrotaxane skeleton, e.g. I, with triflic anhydride causes a major skeletal rearrangement to occur leading to contraction of ring B. A side product, II, is the formation of a ring C-fused cyclopropane structure. The requisite C-13 phenylisoserinate side chains are appended via an initial deacylation of the C-13 acetate followed by reacylation and deprotection. These rearranged compds., e.g. III (R = Bz, CO2CMe3) and IV show very similar structural features with the parent 9-dihydrotaxane skeleton and also retain biol. activity.

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NEWS 5	APR 24	CA/CAplus now has more comprehensive patent assignee information
NEWS 6	APR 26	USPATFULL and USPAT2 enhanced with patent assignment/reassignment information
NEWS 7	APR 28	CAS patent authority coverage expanded
NEWS 8	APR 28	ENCOMPLIT/ENCOMPLIT2 search fields enhanced
NEWS 9	APR 28	Limits doubled for structure searching in CAS REGISTRY
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NEWS 12	MAY 11	BEILSTEIN substance information now available on STN Easy
NEWS 13	MAY 14	DGENE, PCTGEN and USGENE enhanced with increased

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                  limits for exact sequence match searches and
                  introduction of free HIT display format
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                  status data
 NEWS 15  MAY 28  CAS databases on STN enhanced with NANO super role in
                  records back to 1992
 NEWS 16  JUN 01  CAS REGISTRY Source of Registration (SR) searching
                  enhanced on STN
 NEWS 17  JUN 26  NUTRACEUT and PHARMAML no longer updated
 NEWS 18  JUN 29  IMSCOPROFILE now reloaded monthly
 NEWS 19  JUN 29  EPFULL adds Simultaneous Left and Right Truncation
                  (SLART) to AB, MCLM, and TI fields
 NEWS 20  JUL 09  PATDPAFULL adds Simultaneous Left and Right
                  Truncation (SLART) to AB, CLM, MCLM, and TI fields
 NEWS 21  JUL 14  USGENE enhances coverage of patent sequence location
                  (PSL) data
 NEWS 22  JUL 27  CA/CAplus enhanced with new citing references
 NEWS 23  JUL 16  GBFULL adds patent backfile data to 1855
 NEWS 24  JUL 21  USGENE adds bibliographic and sequence information
 NEWS 25  JUL 28  EPFULL adds first-page images and applicant-cited
                  references
 NEWS 26  JUL 28  INPADOCDB and INPAFAMDB add Russian legal status data

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=> s ?rotaxane
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L1        3767 ?ROTAXANE

=> s l1 not py>2004
L2        1934 L1 NOT PY>2004

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PROCESSING IS APPROXIMATELY  62% COMPLETE FOR L2
PROCESSING COMPLETED FOR L2
L3         1468 DUP REM L2 (466 DUPLICATES REMOVED)

=> s l3 and (receptor? or target?)
L4          55 L3 AND (RECEPTOR? OR TARGET?)

=> s l4 and (drug or agent)
L5          10 L4 AND (DRUG OR AGENT)

=> d l5 ibib abs 1-10

L5   ANSWER 1 OF 10  CAPLUS  COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER:        2004:638651  CAPLUS
DOCUMENT NUMBER:         142:245701
TITLE:                   Design of polyrotaxanes as supramolecular conjugates
                         for cells and tissues
AUTHOR(S):               Yui, Nobuhiko; Ooya, Tooru
CORPORATE SOURCE:        School of Materials Science, the 21st Century COE
                         Program, Japan Advanced Institute of Science and
                         Technology, Tatsunokuchi, Ishikawa, 923-1292, Japan
SOURCE:                  Journal of Artificial Organs (2004), 7(2), 62-68
                         CODEN: JAORFN; ISSN: 1434-7229
PUBLISHER:               Springer Tokyo
DOCUMENT TYPE:           Journal; General Review
LANGUAGE:                English
AB   This review focuses on the supramol. challenge of enhancing multivalent
     binding between ligands and proteins or biol. receptors on cell
     surfaces.  The authors' special interest is using supramol.-structured
     polymers, namely, polyrotaxanes consisting of ligand-immobilized
     α-cyclodextrins (α-CDs) threaded onto a poly(ethylene glycol)
     (PEG) chain capped at both terminals with bulky end groups via
     biodegradable linkages.  The structural characteristics of these
     polyrotaxanes involve sliding and rotational motion of the ligands
     immobilized on α-CDs along a PEG chain, thus facilitating access to
     binding sites on proteins.  This approach provides a novel biomaterial
     design in the field of drug delivery and tissue engineering.
OS.CITING REF COUNT:     5     THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD
                               (5 CITINGS)
REFERENCE COUNT:         32    THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS
                               RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5   ANSWER 2 OF 10  CAPLUS  COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER:        2004:236337  CAPLUS
DOCUMENT NUMBER:         140:406441
TITLE:                   Shuttling through anion recognition
AUTHOR(S):               Keaveney, Claire M.; Leigh, David A.
CORPORATE SOURCE:        School of Chemistry, University of Edinburgh,
                         Edinburgh, EH9 3JJ, UK
SOURCE:                  Angewandte Chemie, International Edition (2004),
                         43(10), 1222-1224
                         CODEN: ACIEF5; ISSN: 1433-7851
PUBLISHER:               Wiley-VCH Verlag GmbH & Co. KGaA
DOCUMENT TYPE:           Journal
LANGUAGE:                English
OTHER SOURCE(S):         CASREACT 140:406441
```

AB Anion formation induces translocation of the macrocycle in a mol. shuttle. Shuttling only occurs in polar solvents and is unaffected by the nature of the countercation or the presence of other anions.
OS.CITING REF COUNT: 65 THERE ARE 65 CAPLUS RECORDS THAT CITE THIS RECORD (67 CITINGS)
REFERENCE COUNT: 39 THERE ARE 39 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 3 OF 10 CAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2004:164560 CAPLUS
DOCUMENT NUMBER: 140:374875
TITLE: An Operational Supramolecular Nanovalve
AUTHOR(S): Hernandez, Raquel; Tseng, Hsian-Rong; Wong, Jason W.; Stoddart, J. Fraser; Zink, Jeffrey I.
CORPORATE SOURCE: Department of Chemistry and Biochemistry, University of California, Los Angeles, CA, 90095-1569, USA
SOURCE: Journal of the American Chemical Society (2004), 126(11), 3370-3371
CODEN: JACSAT; ISSN: 0002-7863
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A functioning nanomachine in the form of a supramol. nanovalve that opens and closes the orifices to mol.-sized pores and releases a small number of mols. on demand is reported. The nanovalve, which is used to open and close the nanocontainer, is a pseudorotaxane composed of two components-a long thread containing a 1,5-dioxnaphthalene donor unit, which is attached to the solid support, and the moving part, the tetracationic cyclophane acceptor/receptor, cyclobis(paraquat-p-phenylene), which controls access to the interior of the nanopore. The nanocontainer is made out of mesoporous silica by using a dip-coating method. Operating the nanovalve involves three steps: (i) filling the container, (ii) closing the valve, and (iii) opening the valve to release the contents of the container on demand. The tubular pores, which are approx. 2 nm wide, are filled with stable luminescent Ir(ppy)3 mols. by allowing them to diffuse into the open pores. The orifices are then closed by pseudorotaxane formation. An external reducing reagent (NaCNBH3) is used to effect dethreading of the pseudorotaxane so as to unlock the tubes and allow the guest mols. to be released. This nanovalve is a supramol. machine consisting of a solid framework with moving parts capable of doing useful work.
OS.CITING REF COUNT: 125 THERE ARE 125 CAPLUS RECORDS THAT CITE THIS RECORD (127 CITINGS)
REFERENCE COUNT: 36 THERE ARE 36 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 4 OF 10 CAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2003:717792 CAPLUS
DOCUMENT NUMBER: 139:224476
TITLE: Multivalently interactive molecular assembly, capturing agent, drug carrier, calcium chelating agent, and drug enhancer
INVENTOR(S): Yui, Nobuhiko; Maruyama, Atsushi; Ooya, Tooru
PATENT ASSIGNEE(S): Japan
SOURCE: U.S. Pat. Appl. Publ., 33 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20030171573	A1	20030911	US 2002-230394	20020829
JP 2004027183	A	20040129	JP 2003-51163	20030227
US 20040162275	A1	20040819	US 2003-679499	20031007
PRIORITY APPLN. INFO.:			JP 2002-52474 A	20020227
			US 2002-230394 A	20020829

AB The invention relates to a multivalently interactive mol. assembly which can effectively and stably bind to a target substance in vivo or in vitro, a capturing agent comprising said multivalently interactive mol. assembly for capturing an object of interest in vivo or in vitro, a drug carrier which aids administration of a drug, a calcium chelating agent which can effectively chelate calcium, and a drug enhancer which can be administered with a drug to assist in e.g. absorption of the drug. The invention discloses a multivalently interactive mol. assembly having a plurality of functional groups or ligands, in which a ratio between Rh and Rg expressed as Rh/Rg is 1.0 or less. Here, Rh is a hydrodynamic radius calculated from a dynamic light scattering assay performed in aqueous solution, and Rg is a radius of gyration determined based on the Zimm plot generated using data obtained by a static light scattering assay. Specifically, the invention discloses polyrotaxanes, the synthesis of which is described.

OS.CITING REF COUNT: 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD (8 CITINGS)

L5 ANSWER 5 OF 10 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2003:558225 CAPLUS
DOCUMENT NUMBER: 140:117028
TITLE: Polyrotaxanes: challenge to multivalent binding with biological receptors on cell surfaces
AUTHOR(S): Yui, Nobuhiko; Ooya, Tooru
CORPORATE SOURCE: Japan Advanced Institute of Science and Technology, Tatsunokuchi, Ishikawa, 923-1292, Japan
SOURCE: Materials Science Forum (2003), 426-432(Pt. 4, THERMEC'2003), 3243-3248
CODEN: MSFOEP; ISSN: 0255-5476
PUBLISHER: Trans Tech Publications Ltd.
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English

AB A review. The challenge to multivalent binding between ligands and proteins or biol. receptors on cell surfaces has been focused on using supramol.-structured polymers, polyrotaxanes. Our designed polyrotaxanes consist of ligand-immobilized α-cyclodextrins (α-CDs) threaded onto a linear polymeric chain (polyethylene glycol) (PEG) capped both terminals with bulky end-groups via biodegradable linkages. Structural characteristics of these polyrotaxanes involve sliding and rotational motion of the ligands immobilized on α-CDs along a PEG chain as to easily face to binding sites on proteins, which can contribute much to enhanced multivalent binding with proteins.

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)
REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 6 OF 10 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2002:691806 CAPLUS
DOCUMENT NUMBER: 138:343544
TITLE: Supramolecular design aiming at intelligent DDS
AUTHOR(S): Yui, Nobuhiko
CORPORATE SOURCE: Japan
SOURCE: Kino Zairyo (2002), 22(8), 28-34

CODEN: KIZAEP; ISSN: 0286-4835
PUBLISHER: Shi Emu Shi Shuppan
DOCUMENT TYPE: Journal; General Review
LANGUAGE: Japanese
AB A review on intelligent drug delivery system (DDS). Topics discussed are design of biomaterial containing polyrotaxane, multivalent interaction between the polyrotaxane and cell membrane receptors, design of hydrogel containing inclusion complex of α-cyclodextrin with poly(ε-lysine) and biodegradable polyrotaxane hydrogel, and supermol. design of nano-scale biomaterial for DDS.

L5 ANSWER 7 OF 10 CAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2002:258831 CAPLUS
DOCUMENT NUMBER: 138:175631
TITLE: Multivalent interactions between biotin-polyrotaxane conjugates and streptavidin as a model of new targeting for transporters
AUTHOR(S): Ooya, Tooru; Yui, Nobuhiko
CORPORATE SOURCE: School of Materials Science, Japan Advanced Institute of Science and Technology, Tatsunokuchi, Ishikawa, 923-1292, Japan
SOURCE: Journal of Controlled Release (2002), 80(1-3), 219-228
CODEN: JCREEC; ISSN: 0168-3659
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Kinetic anal. of interactions between biotin-polyrotaxane or biotin-α-cyclodextrin (biotin-α-CD) conjugates and streptavidin was carried out as a model of new targeting to transporters using the surface plasmon resonance (SPR) technique. The biotin-polyrotaxane conjugates, in which biotin-introduced α-CDs are threaded onto a poly(ethylene oxide) chain capped with bulky end-groups, are expected to increase the valency of biotin from monovalent to multivalent binding. The number of biotins conjugated with one polyrotaxane mol. varied from 11 to 78, and apparently increased the association equilibrium constant (Ka), assuming pseudo-first-order kinetics. A detailed dissociation kinetics was analyzed and the re-binding of the biotin-polyrotaxane conjugates was observed on the streptavidin-deposited SPR surface. The magnitude of the re-binding is likely to become larger with increasing the number of biotins, suggesting multivalent interaction on the SPR surface. To quantify the effect of valency, competitive inhibition assay was performed in terms of the supramol. structure of the polyrotaxane. The inhibitory potency of the biotin-polyrotaxane conjugate was found to be 4-5 times greater than that of the biotin-α-CD conjugate. Therefore, the biotin-polyrotaxane conjugates by supramol. formation of the biotin-α-CD conjugate significantly switches from monovalent to multivalent bindings to the model binding protein, streptavidin.
OS.CITING REF COUNT: 35 THERE ARE 35 CAPLUS RECORDS THAT CITE THIS RECORD (35 CITINGS)
REFERENCE COUNT: 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 8 OF 10 CAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 1998:482084 CAPLUS
DOCUMENT NUMBER: 129:265277
ORIGINAL REFERENCE NO.: 129:53985a
TITLE: New approach to drug targeting using a drug-polyrotaxane conjugate

AUTHOR(S): Ooya, Tooru; Yui, Nobuhiko
CORPORATE SOURCE: Japan Advanced Institute of Science and Technology, Ishikawa, 923-1292, Japan
SOURCE: Proceedings of the International Symposium on Controlled Release of Bioactive Materials (1998), 25th, 860-861
CODEN: PCRMEY; ISSN: 1022-0178
PUBLISHER: Controlled Release Society, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A novel supramol.-structured drug conjugate using a polyrotaxane was prepared In vitro degradation of the conjugate revealed that theophylline-modified α-cyclodextrin were released by terminal hydrolysis of the polyrotaxane. The drug release via supramol. dissoln. can feasibly be used for dual drug targeting.
REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 9 OF 10 CAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 1998:179433 CAPLUS
DOCUMENT NUMBER: 129:24600
ORIGINAL REFERENCE NO.: 129:5159a,5162a
TITLE: Triplex-directed self-assembly of an artificial sliding clamp on duplex DNA
AUTHOR(S): Ryan, Kevin; Kool, Eric T.
CORPORATE SOURCE: Department Chemistry, University Rochester, Rochester, NY, 14627, USA
SOURCE: Chemistry & Biology (1998), 5(2), 59-67
CODEN: CBOLE2; ISSN: 1074-5521
PUBLISHER: Current Biology Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Circular triplex-forming oligonucleotides (CTFOs) have previously been shown to bind tightly to short single-stranded homopurine DNAs in a sequence-specific manner. In view of the importance of double-stranded DNA as a target in the development of gene-specific therapeutic and diagnostic agents, we have investigated the binding of CTFOs to double-helical DNA. DNA-binding expts. show that a CTFO can recognize its homopurine target when the target is embedded in a long duplex. Unlike their linear counterparts, CTFOs bind the double helix in two topol. distinct forms. The more stable of the two complexes is found to be a pseudorotaxane, having the same topol. as the sliding clamp protein subunits associated with some DNA and RNA polymerases. Circular triplex-forming oligonucleotides have been shown to bind the DNA double helix in a topol. manner which is unprecedented among synthetic ligands. This novel binding motif allows a synthetic CTFO to be irreversibly locked onto a circular double-stranded DNA target without covalently modifying the target.
OS.CITING REF COUNT: 26 THERE ARE 26 CAPLUS RECORDS THAT CITE THIS RECORD (26 CITINGS)
REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 10 OF 10 EMBASE COPYRIGHT (c) 2009 Elsevier B.V. All rights reserved on STN
ACCESSION NUMBER: 2001037409 EMBASE
TITLE: Pacific chemists throw switches, strike at disease.
AUTHOR: Service, R.F.
SOURCE: Science, (19 Jan 2001) Vol. 291, No. 5503, pp. 426-427.
ISSN: 0036-8075 CODEN: SCIEAS
COUNTRY: United States

DOCUMENT TYPE: Journal; Conference Article; (Conference paper)
FILE SEGMENT: 029 Clinical and Experimental Biochemistry
003 Endocrinology
037 Drug Literature Index
005 General Pathology and Pathological Anatomy
008 Neurology and Neurosurgery
LANGUAGE: English
SUMMARY LANGUAGE: English
ENTRY DATE: Entered STN: 15 Feb 2001
Last Updated on STN: 15 Feb 2001

AB Honolulu, Hawaii - Once every 5 years, chemists from North America, Japan, New Zealand, and Australia come together for the International Chemical Congress of Pacific Basin Societies. At last month's meeting, over 10,000 researchers discussed topics that included a new molecular electronic switch and new hope for fighting diabetes and Alzheimer's disease.

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